ENGINEERING NEWS-RECORD

A McGRAW HILL PUBLICATION

OPERATING ECONOMY and flexibility are two advantages of using G-E drives at plant's key points. Aggregates are blended in bin, fed into dryer by elevator, then lifted to top of tower by elevator for screening. Dried aggregate is batched and deposited in mixer, where asphalt from tanks at left is also introduced, then mixed and discharged into trucks.

Asphalt plant electrified for portability, high output

G-E drives simplify operation of 125-ton-an-hour Heldenfels Bros. plant; no repairs needed in two years

This portable motorized asphalt plant—owned and operated by Heldenfels Bros. Co. of Corpus Christi, Texas, and built by Iowa Manufacturing Co., Cedar Rapids, Iowa—is largest in the area. Key to its 125-ton hourly output—approximately twice as much as non-motorized plants—is simplified operation and portability, made possible by co-ordinated General Electric motors and control. Plant is easily broken down for relocation. And, says Mr. F. W. Heldenfels, "not one cent has been spent for electrical repairs in over two years of continuous operation."

The plant's G-E drives provide operating reliability, plus one-man control. The gear-motors, small and light considering their power, take up minimum space, and are remounted quickly. Over-all plant weight is reduced, flexibility added.

For faster, easier, more efficient operation of *your* construction equipment, electrify with G-E drives and power distribution equipment—backed by G-E engineering help in application, installation and service. General Electric, Schenectady 5, N.Y.

1878 **75** 1953
YEARS OF ELECTRICAL PROGRESS

664-29

EASY TO RE-LOCATE G-E motors and control, like this 50-hp totally enclosed gear-motor, can be quickly transported by truck from one job to the next.

ONE-MAN CONTROL of plant's production is possible with G-E remote control panel in tower, from which dryer, elevators and conveyors are operated.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC

Bethlehem bars always reach the job ready for placing. Here bars have been separated and are being used as required.

Bars Delivered to Your Job Ready for Instant Placing

When you specify Bethlehem Reinforcing Bars you can put them to work as soon as they reach your job site. All you have to do is read the tag, open the bundle and place the bars in position.

Bethlehem bars are carefully fabricated to meet your specifications. They reach the job sheared to exact length, accurately shaped on bending machines, bundled and tagged, and with bar lists included.

Only new-billet steel is used in making Bethlehem bars. Deep ribs, closely spaced, give the bars a tight grip in concrete, and help check the formation of wide tensile cracks.

Plan to use Bethlehem bars on your next concreting job. For more information, call our nearest sales office—or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BAR FABRICATING SHOPS

Well-stocked fabricating shops at these locations are always ready to supply you with Bethlehem bars of any size, shape or tonnage:

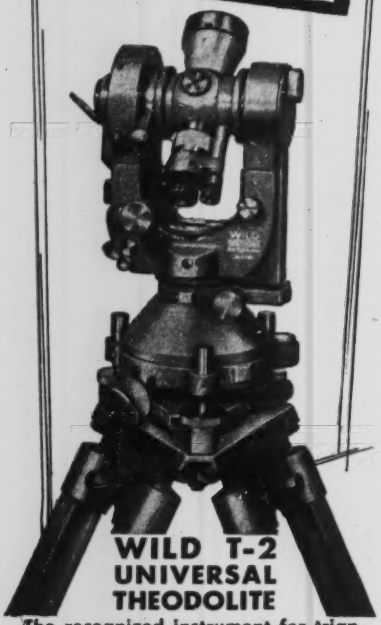
Boston, Mass.
Philadelphia, Pa.
Lackawanna, N. Y.
Elizabeth, N. J.
Johnstown, Pa.
Clearing, Ill.
Sparrows Point, Md.
St. Paul, Minn.

BETHLEHEM STEEL

BETHLEHEM REINFORCING BARS

TOMORROW'S INSTRUMENT TODAY!

WILD HEERBRUGG



WILD T-2 UNIVERSAL THEODOLITE

The recognized instrument for triangulation, bridgework and other precise engineering jobs... The Instrument For YOU.

You read both circles by microscope ...direct to one second. Every reading gives the mean of two diametrically opposite points of the circle, and is therefore free from eccentricity-errors.

The optical plummet makes centering above a ground point an easy and quick operation even on windy days. The telescope with its big field of view is "easy on the eye" and can be transited both ways.

Available accessories include battery box for night work, traverse targets, Invar Subtense Bar for optical distance measurement.

Choose WILD instruments for ease of operation, speed and accuracy.

Write or phone for Booklet EN 93

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ENGINEERING NEWS-RECORD

ABP Member

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Robert F. Boger

Publisher

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Easy to Order! . . .

. . . Quick and Easy to Install!

Grinnell Welding Fittings

Any qualified welder can make welds quickly and easily with Grinnell welding fittings. These fittings are made by a hydraulic forging process that assures uniform wall thickness at all points and true circularity throughout. Of seamless, one-piece construction, they can be cut at any angle to match up with standard weight, extra strong and heavier wall pipe in I.D. or O.D. sizes. Pressure-temperature ratings are equal to or greater than those of seamless steel pipe. Grinnell welding fittings are process stress-relieved.

Full data on the complete line of Grinnell seamless carbon steel welding fittings and forged steel flanges is contained in the Grinnell Welding Fittings catalog. Send for a copy.

GRINNELL
WHENEVER PIPING IS INVOLVED

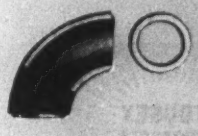
RANGE OF TYPES AND SIZES

Description	Standard Weight	Extra Strong	Schedule 160	Double Extra Strong	Light Gauge Nominal Pipe Size	Light Gauge Iron Pipe Size
ELBOWS 90° Long Radius	½"-42"	½"-42"	1"-12"	¾"-8"	4"-24"	¾"-12"
90° Long Tangent	1½"-12"	1½"-12"	.....	.....	.....	.....
90° Reducing	2"x¾" to 6"x5"		.....	.....	.....	.....
90° Short Radius	1"-30"	1½"-30"	.....	.....	.....	.....
45° Long Radius	½"-42"	¾"-42"	1"-12"	¾"-8"	4"-24"	¾"-12"
RETURNS 180° Long Radius	½"-30"	½"-30"	1"-12"	2"-8"	4"-24"	¾"-12"
180° Short Radius	1"-30"	1½"-30"	.....	.....	.....	.....
180° Ex. Long Radius	1"-2½"	1"-2½"	.....	.....	.....	.....
TEES — Straight	½"-30"	½"-30"	½"-12"	½"-8"	.....	.....
Reducing Outlet	½"-30"	½"-30"	¾"-12"	¾"-8"	.....	.....
REDUCERS Concentric & Eccentric	¾"-24"	¾"-24"	¾"-12"	¾"-8"	.....	.....
CAPS	¾"-36"	¾"-36"	1"-12"	1"-8"	.....	.....
STUB ENDS — Lap Joint	½"-24"	½"-24"				
SADDLES	2"-24"					
LATERALS — Straight	1¼"-24"	1¼"-24"				
Reducing	1¼"-24"	1¼"-24"				
CROSSES — Straight	1¼"-24"	1¼"-24"				
Reducing	1¼"-24"	1¼"-24"				
BACKING RINGS	2"-24"	2"-24"				

Also available in certain sizes are: 90° long and short radius elbows, 45° long radius elbows and 180° long and short radius returns in Schedules 30, 40, 60 and 80.

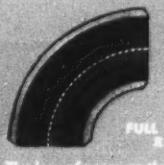
Grinnell welding fittings and flanges conform to applicable ASA and ASTM Standards.

GRINNELL WELDING FITTINGS ARE QUALITY-CONTROLLED FOR DEPENDABILITY



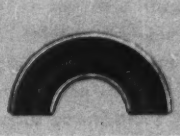
TRUE CIRCULAR SECTION

True circular section at all points makes a Grinnell fitting easy to align and weld . . . there is no distortion or no flattening to affect flow adversely.



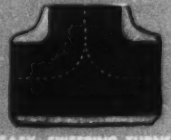
FULL EFFECTIVE RADIUS

The loss of pressure through Grinnell welding elbows is held down to an absolute minimum . . . because of the full and the effective sweep of the radius.



SMOOTH, CLEAN INSIDE SURFACE

Grinnell Fittings have uniformly smooth inner walls . . . no waves or ridges to cause turbulence or accelerate erosion or corrosion. No pockets to trap solids.



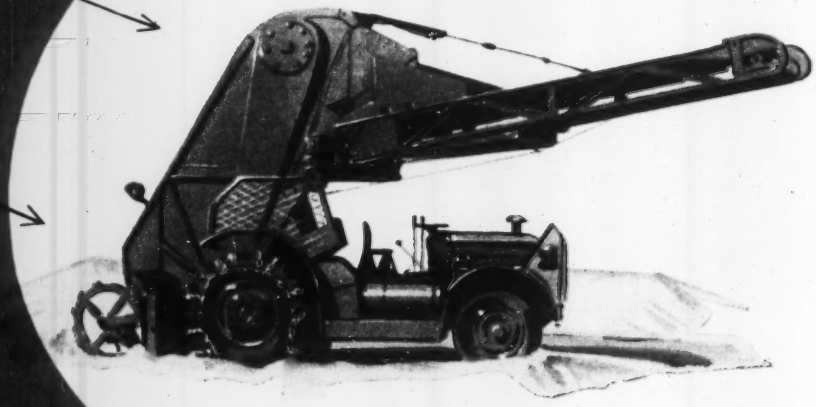
EASY, SWEEPING TURNS

In Grinnell welding tees, corners where outlet joins the run are well-rounded and perfectly smooth to minimize resistance to flow and to prevent trapping.

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

Protection by TOUSEY!



TOUSEY finishes protect this large commercial scoop loader from rust and abrasion the year 'round. Winter months call for a heavy work schedule, moving tons of snow in sub-zero weather—heavy contacts with curbs, street fields and ice. Summer months are equally difficult with the long storage period when humidity and heat combine to break down the protective coating. Years of experience coupled with extensive research have taught TOUSEY how to solve many such finishing problems. Send in your specifications—technical information will be given without obligation.

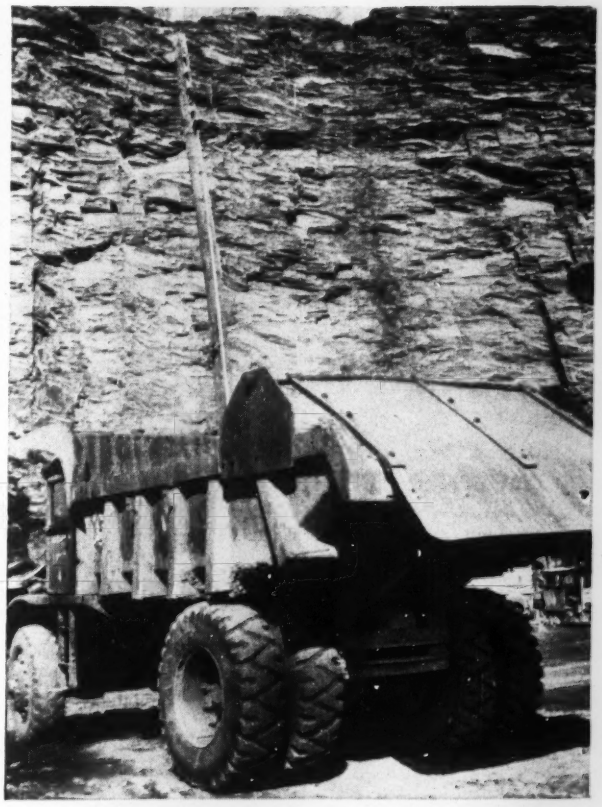
TOUSEY PRODUCTS

DURACOTE for DURABILITY

TOUSEY VARNISH COMPANY

520 WEST 35TH STREET CHICAGO 16, ILLINOIS

B.F.Goodrich



Off-the-road tires carry 30 tons 4,500 hours a year

THE trucks of the Penn Dixie Cement Corporation, Nazareth, Pa., roll over a rock-strewn quarry floor, then back up a steep incline to dump their load of rock. This rugged hauling job goes on more than 80 hours a week—with 15 tons of rock plus a truck weight of 15 tons for the tires to carry.

For such punishing work, the company uses B. F. Goodrich tires exclusively. The report: these tires stand up so well they can be recapped *twice* for 90% of new-tire service per recap! The tires in the picture have already run more than 4,300 hours. The patented B. F. Goodrich nylon shock shield is one reason for this amazing record.

Layers of strong, elastic nylon cords under the tread stretch together to protect the tire body from rock cuts and bruises. This means you get more original hours of service, more recappable tires and more hours of service per recap, increased bruise resistance and less danger of tread separation. You save 4 ways, yet you pay nothing extra for the exclusive nylon shock shield.

B. F. Goodrich Universal tires are built with a specially-compounded tread that resists snags and cuts, gives 2-way traction and longer wear. This is one more reason why you get better performance from B. F. Goodrich off-the-road tires. See the complete money-saving line at your B. F. Goodrich retailer's store. The address is listed under Tires in the Yellow Pages of your phone book. Or mail the coupon below.

Specify B. F. Goodrich tires when ordering new equipment

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

The B. F. Goodrich Company
Department TO-143, Akron 18, Ohio

Please send:

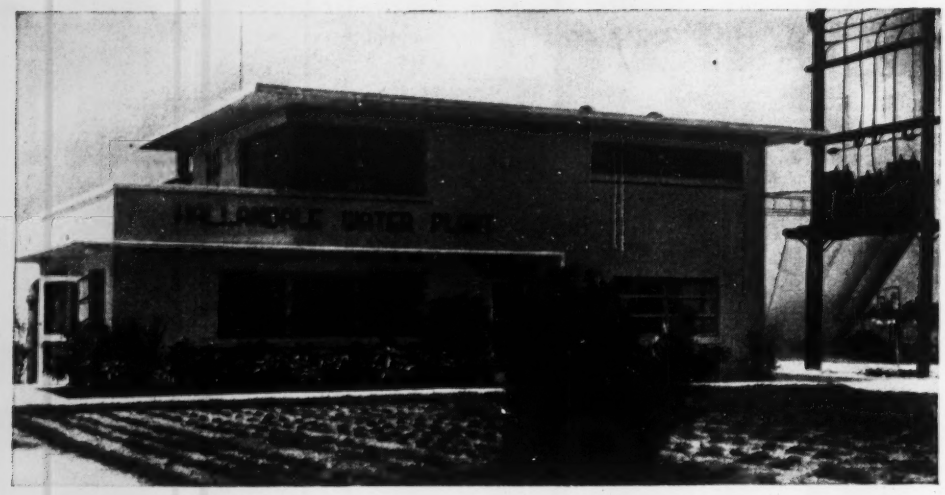
- ☐ Catalog on Universal tires
- ☐ Free booklet, "How to get more recaps out of truck tires"
- ☐ Name of my nearest retailer

Name_____

Company_____

Street_____

City_____ Zone____ State_____



How Hallandale, Florida, got Soft, Clear Water

PROBLEM

Well water with hardness of over 240 ppm--mostly bicarbonate--and objectionable organic color. Softening and color removal definitely required. Water Conditioning equipment to be economical in serving equipment to be population ... to retain this economy in providing 1980's population with 2,000,000 gpd.

SOLUTION

Briley, Wild & Associates, Consulting Engineers, Daytona Beach, Fla., studied latest methods & equipment. Selected lime-alum method. Specified modern type unit for highly efficient reaction between minerals in water and lime-alum. Installed--Permutit Vertical Precipitator. Upward filtration through suspended sludge blanket gives intimate chemical contact, makes for operating economy.

RESULTS

Softened, clear water. Permutit Precipitator removes color and reduces hardness to desired level. Last traces of turbidity are removed by filtration through gravity filters.

For full information write to THE PERMUTIT COMPANY, DEPT. ENR-9, 330 WEST 42nd STREET, NEW YORK 36, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

WATER CONDITIONING HEADQUARTERS FOR 40 YEARS

PERMUTIT®

Registered Trade Mark

with dependable GarWood "ROLLING WEDGE" ACTION

Here, in the heart of the hoist, is where the years-ahead design of Gar Wood's famous "Rolling Wedge" cam and roller action pays off in superior performance and unmatched dependability. Exclusive "Rolling Wedge" cam and roller action provides built in control of oil pressure during the entire lifting cycle. Oil pressure remains uniform at all times—there are no sudden changes from low to high or from high to low. Pump life is substantially lengthened and sudden shocks to hydraulic system are eliminated.

Scientific cam design with exclusive, lift-proportioned cam contour provides maximum lifting effort at the start of the lift *without increased hydraulic pressure.* Reduced cam entering angle gives greater lifting effort with slower, smoother action at the start. Stresses to hoist and chassis are eliminated. As the rollers are forced deeper, cam contour changes to provide accelerated lifting as the center of the mass is moved towards the discharge end of the body. *Oil pressure remains uniform during this entire lifting cycle.*

For smooth, dependable operation—and for longer service life in rugged dump-truck operation—specify Gar Wood "Load Engineered" Dump Bodies and Hoists when you buy new equipment. There's a size and type to fit your needs exactly. See your nearby Gar Wood dealer soon or write direct for complete specifications and application information.

2M100

Gar Wood Industries, Inc.
36008 Main St., Wayne, Michigan
Att'n: Customer Service Dep't.

Please send me complete information about Gar Wood Dump Bodies and Hoists for my hauling job.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

Describe operation briefly_____

GAR WOOD INDUSTRIES, INC.
WAYNE, MICHIGAN

GAR WOOD GW INDUSTRIES

TRUCK EQUIPMENT: Dump Truck Bodies and Hoists, Winches and Cranes, Refuse Collection Units, Spreading and Sanding, CONSTRUCTION EQUIPMENT: Excavators, Scrapers, Rooters, Graders, Spreaders, Pulverizers, Post-Hole Diggers, Trenchers

Destined to write a new page in cast iron pipe's history

Everybody knows that cast iron pipe has a history of more than 200 years of continuous service abroad and over a century in more than 45 cities in America. A record of economy and efficiency unique in engineering annals!

Yet today's *modernized* cast iron pressure pipe—centrifugally cast—is even more economical, even more efficient. It is tougher, stronger, more uniform in controlled quality. Where needed and specified, it is lined with cement mortar, centrifugally applied, resulting in a tuberculation-proof pipe with sustained carrying capacity, thereby reducing friction and pumping costs.

If you want the most efficient and economical pipe ever made for water distribution, your new mains will be laid with *modernized* cast iron pipe with either mechanical or bell-and-spigot joints. Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3.

CAST Q IRON

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

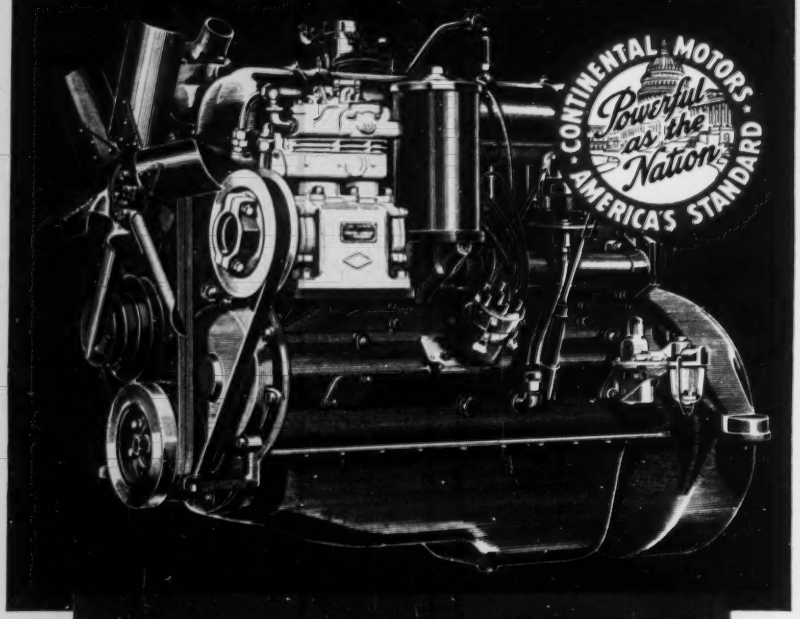
Modernized **cast iron**

This cast iron water main, uncovered for inspection, is in good condition after over 110 years of service in Mobile, Ala.— one of more than 45 cities with century-old water or gas mains in service.

pipe for Modern Waterworks Operation

ENGINEERED TO OUT-PERFORM

· CONTINENTAL ·



28 BASIC MODELS FOR TRUCKS AND BUSES

For more than 50 years, Continental has been engineering power plants to do more useful work per pound of engine weight, and building them to run longer with less time out for repairs. Materials flow more steadily and at lower ton-mile cost, when they move to the job in trucks with dependable Red Seal power. And the range of the Red Seal line—28 basic models, Diesel and gasoline—assures exactly the right engine for every commercial transport job.

Continental air-cooled industrial engines, 2, 2½ and 3 h.p., are available in horizontal and vertical shaft types, for lawnmowers, garden tractors, pumps, and other applications. For information, address Air-Cooled Industrial Engine Division, 12800 Kercheval Avenue, Detroit 14, Michigan.

Continental Motors Corporation
MUSKEGON, MICHIGAN

READER COMMENT

Kentucky contract work

SIR: Page 22 of your March 19 issue contains a table showing state highway construction programs for 1952-53—and contains an omission in the Maintenance By Contract columns, concerning Kentucky.

That column lists contract maintenance in Kentucky as "0". Kentucky has in the past done considerable maintenance work by contract, and still does so.

During the calendar year 1952, the cost of maintenance by contract amounted to $812,500. For the calendar year 1953, the figure will be $975,000.

W. J. CROUSE
Director, Division of Maintenance
Department of Highways
Frankfort, Ky.

Prestress economy doubted

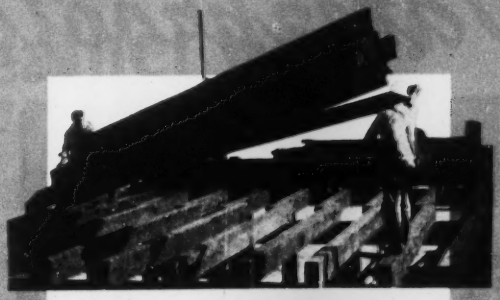
SIR: Mr. Lee's letter, "Prestressing in England (ENR July 9, p. 6) indicates that a few figures should be furnished on unit prices bid on the $7.92-per-sq-ft bridge in Kings County, Wash. (ENR May 14, p. 58). The contract price on wide-flange beams was $0.155 per lb; on reinforcement, $0.12 per lb; on Class A concrete, $80 per cu yd.

The contractor advises that he would gladly undertake to build the counterpart of this bridge for the same price, modified only to cover changes in labor and materials costs in the two intervening years.

I do not question the widespread and economical use of prestressed concrete in England and Europe. On the other hand, under utterly different labor and material prices, where is its economy here? I have read quite attentively of different jobs and their claimed economy, but have usually found that they cost over one-third more than they would have cost unprestressed.

The sole exception is the Lower Tampa Bay bridge in Florida, where alternate bids were invited on about 3¾ miles of trestle structure. With 363 identical 48-ft spans involved, prestressed beam stems were used in one design. These members having been placed, carried forms and the weight of the fresh reinforced concrete roadway slab poured over them. The substructure consists of concrete piles. The other and competing design was for conventional cast-in-place T-beam construction and, of course, required falsework. Under these conditions and

Wood Construction Designed for Permanence



1 (*Official photo—U. S. Navy*)

2

1. Navy Pier, San Diego. Rotted stringers and wales were replaced with wood pressure-treated to a 6# retention of Monsanto Penta. This preservative will extend the service life of the wood 3 to 5 times.

2. U. S. Army Chlorine Plant. At Muscle Shoals, Alabama, 281,000 board feet of wood for platforms, stairs and railings were pressure-treated with Monsanto Penta. The material was used in the cell room, and around acid drying towers, brine system, etc.

3. Air Force Bridges. At Beale AF Base, California, railroad trestle bridges were pressure-treated with a 5% Penta-in-oil solution to an 8# net retention per cubic foot of wood. Penta protects the wood against rot and insect attack.

SEND *for this useful booklet, "Specify Monsanto Penta." Write: Monsanto Chemical Company, Organic Chemicals Division, 800 North Twelfth Boulevard., St. Louis 1, Missouri.*

3

Monsanto PENTA is Specified for Tough Government Jobs

MONSANTO
CHEMICALS – PLASTICS

SERVING INDUSTRY... WHICH SERVES MANKIND

Waterproofed BRIXMENT HELPS PREVENT EFFLORESCENCE

Efflorescence is caused by soluble salts which are present in almost all masonry materials. When reached by water, these salts dissolve and may be drawn, by evaporation, to the surface of the wall.

Brixment is permanently waterproofed, during manufacture, with the most effective air-entraining waterproofing agent known.

Waterproofed Brixment mortar checks the passage of water and keeps it from percolating down through the wall, dissolving salts which may be in the masonry materials, and carrying them to the surface.

* * * * * * * * *

In addition to reducing the possibility of efflorescence, Brixment mortar gives you two other practical benefits:

1 HELPS PREVENT LEAKY WALLS

Even under pressure, water cannot readily pass through Brixment mortar. Therefore, if the face brick are backplastered with Brixment mortar, an effective barrier is set up against the passage of water to the inside of the wall.

2 GREATLY INCREASES DURABILITY

Water cannot readily penetrate Brixment mortar. This prevents the mortar from becoming saturated — therefore helps protect it from destructive action of freezing and thawing to which it is subjected many times each winter.

Both these advantages of waterproofed Brixment mortar are fully described in other recent advertisements. Write for reprints.

Louisville Cement Co., Louisville 2, Ky.

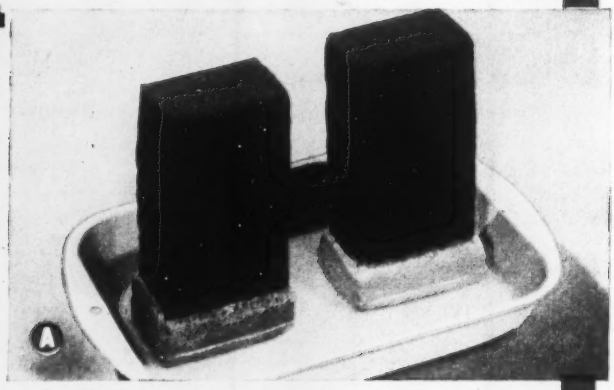


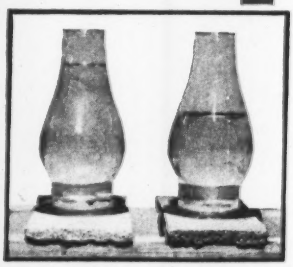
FIGURE 1

A To test Brixment and any other mortar for resistance to efflorescence, "cap" two brick heavily with the mortars, and let harden.

B Keep both brick for a few weeks in a shallow pan of water, as shown. See the difference with waterproofed Brixment mortar!

FIGURE 2

Prepare two slabs of mortar, one with Brixment and one with ordinary cement-and-lime mortar. After mortars have hardened, seal a lamp chimney to each of the mortar slabs, using wax or candle grease, and fill with water.



After 24 hours, note how much water has gone into and through the non-waterproofed mortar, and how little water has gone into or through the Brixment mortar.

with an experienced prestressing firm handling the specialty phase of the work, the prestressed design was 4% lower in cost, and was accepted for construction.

All that is conclusively demonstrated in this case, however, is that the prestressed design was 4% less costly than the competing monolithic T-beam design. Whether the prestressed design would have been 4% less costly than any other unprestressed competing design has not been shown.

HOMER M. HADLEY
Consulting Engineer
Hadley & Hadley
Seattle, Wash.

Sand pile compaction

SIR: I read with great interest your note "Pile drivers used as compactors", published under "Research" in ENR of June 25, 1953, p. 62.

However, some points are not too clear. In paragraph 3 you stated "These piles are 16-in diameter columns of compacted new sand"; and in paragraph 6: ". . . —driven to the required depth and resistance, the core removed and the casing filled with sand. The core was then placed back on top of the sand and the casing extracted. . ."

You do not describe how the sand column was compacted. This is an important point since subsequent settlement may occur under vibratory loads of the compressors if these columns were not compacted properly.

It would be also of interest to know how the results of above compaction were checked and what improvement was found, especially in the upper stratum which will directly receive the foundation loads.

A. MYSTKOWSKI
Civil Engineer
Ebasco Services, Inc.
New York, N. Y.

SIR: This is in answer to the letter of A. Mystkowski concerning the use of pile drivers as compactors, published in ENR of June 25, 1953, on page 62.

The sand used in the piles, which was carefully selected as to grain size, was quite coarse. It was placed in a thoroughly saturated condition to insure there would be no bulking or arching due to capillary forces. The equipment used was so arranged that the force required to pull the casing was transmitted to the core which rested on top of the sand column. As the casing was pulled, this core was forced downward by an amount which slightly more than compen-

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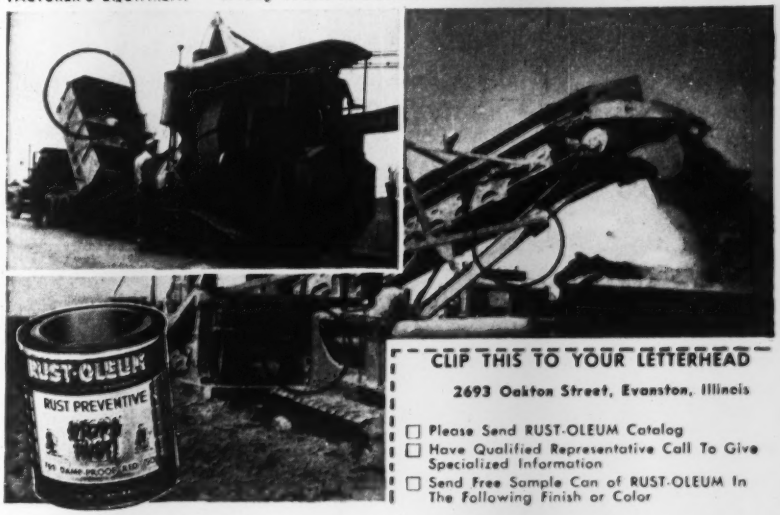

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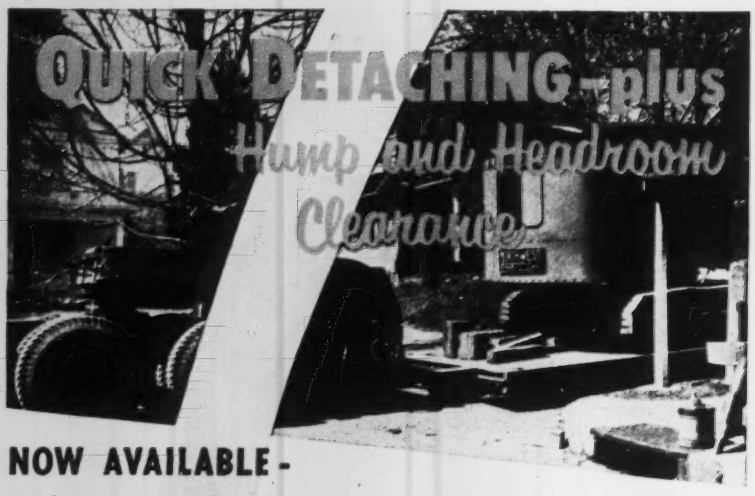

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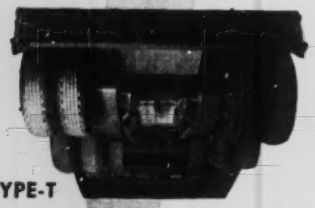
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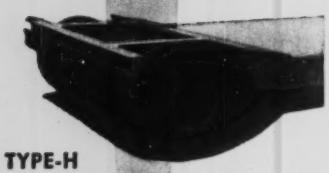
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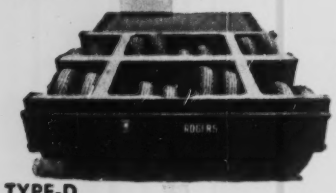
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READER COMMENT

sated for the volume of the casing walls. The forces imposed on the sand during the withdrawal of the casing were quite large, reaching a maximum value of about 80 tons. The method of placing insured the sand column is continuous and free of voids and that the sand was placed in a moderately dense condition. In addition, driving of the adjoining piles subjected each sand column to displacement and vibration which insured that it was thoroughly compacted before the foundation of the compressor plant was constructed.

A grid of reference hubs was set in the surface soils and in the sand in the area to be compacted and subsidence was measured at frequent intervals. Based on a pile penetration of 25 ft the densification obtained by displacement from the sand pile, plus the actual measured ground settlement due to vibration during pile driving was equivalent to a vertical settlement of almost 2 ft.

W. F. SWIGER,
Structural Engineer
Stone & Webster Engineering Corp.
Boston, Mass.

CALENDAR

American Institute of Parks Executives, Denver, Colo., Sept. 13-18.

National technical conference on lighting, Illuminating Engineering Society, Hotel Commodore, N. Y., Sept. 14-17.

American Concrete Pipe Association, executive committee, Castil Harbour Hotel, Bermuda, Sept. 19-30.

National highway conference of county officials, American Road Builders Association, Lake Delton, Wis., Sept. 24-25.

National Electrical Industries Show, 69th Regiment Armory, New York City, Sept. 29-Oct. 2.

Southeastern Association of State Highway Officials, annual meeting, Asheville, N. C., Sept. 30-Oct. 3.

Conference on Radiant Heating, Department of Architecture, Pratt Institute, Brooklyn, N. Y., Tuesday evenings, 7:30 to 9:30 p.m., October-November.

Western Association of State Highway Officials, annual conference, Santa Fe, N. M., Oct. 7-10.

National Conference on Industrial Hydraulics, Hotel Sheraton, Chicago, Oct. 8-9.

American Concrete Pressure Pipe Association, convention and meeting, Ponte Vedra Inn, Ponte Vedra, Fla., Oct. 8-10.

Concrete Reinforcing Steel Institute, semi-annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 12-17.

Engineers' Council for Professional Development, Hotel Statler, New York City, Oct. 14-17.

American Society of Civil Engineers, annual meeting, Hotel Statler, New York City, Oct. 19-23.

Excessive noise symposium, Armour Research Foundation, Illinois Institute of Technology, Chicago, Oct. 23-24.

American Public Works Association annual public works congress and equipment show, Roosevelt Hotel and Municipal Auditorium, New Orleans, La., Oct. 26-29.

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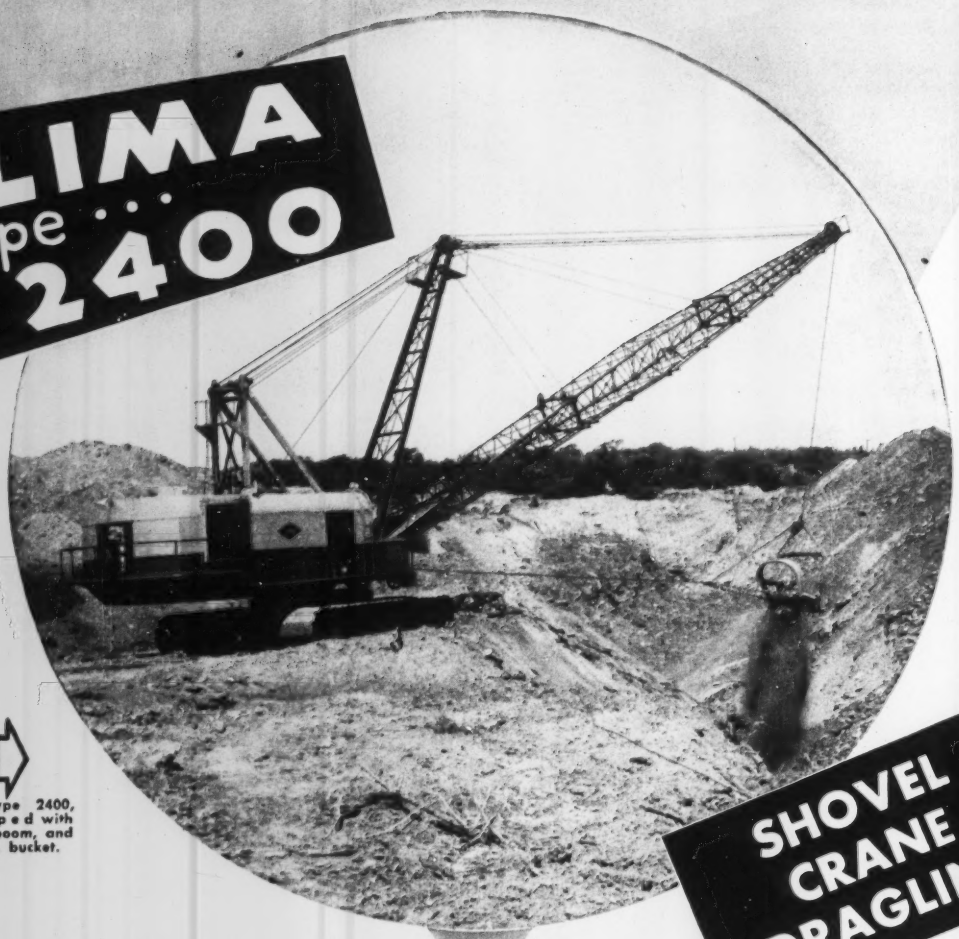

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THE CONSTRUCTION WEEK

- **Fight point**—The chemical industry has become the focal point of the AFL-CIO battle—and the fight will have a direct effect on construction.

  There are two places to watch: the big American Potash & Chemical plant at Trona, Calif., and Washington, D. C. And there's one big issue: Should the National Labor Relations Board permit small craft unions to bargain with employers, or stick with its previous custom of allowing one big union to do all the talking?

  NLRB has set a hearing at Washington for Sept. 15 (although it may be postponed for a while beyond that) on the claims of six small AFL craft unions at Trona, as against the big CIO plant-wide union. CIO is not directly involved—what NLRB will do is re-examine its own policies in regard to permitting the smaller craft unions to negotiate separately. Previously, NLRB has held that the crafts are so closely tied to the production work in such a plant as Trona that they can't make separate agreements.

  Observers are convinced that NLRB's final decision could disrupt labor relations in basic industry, and perhaps torpedo the no-raiding pact that AFL and CIO are planning to put into effect next year.

- **Slight retreat on bay bridge**—Pressured by furiously indignant San Francisco officials who have supported the Army Street site, the Navy has slightly amended its objections to plans for a second San Francisco Bay crossing.

  After dropping a bombshell in the form of a statement that unbuilt jet planes would need long approach lanes (ENR Aug. 27, p. 24) and apparently thus block plans for the Army Street-Bay Farm Island route for the second bridge, the Navy retreated this far:

  It eliminated one of its proposed sea lanes—the one that would interfere most seriously with the planned crossing.

  But the crossing would have to be redesigned anyway with a decided dogleg, to miss the area the Navy wants to restrict for seaplane operation.

- **New water agency?**—The growing trend, taking the federal government out of large-scale resources development (in favor of states and local groups), may result in a new national agency.

  Or at least that's the idea of California state engineer A. D. Edmonston. Speaking at the annual session of the Western State Engineers, Edmonston commented that a new look is in order for national water policy, and an agency must be established to coordinate developments on lower levels.

- **Drought cuts construction**—Low rainfall in the Ottawa River Valley has so reduced the flow of that stream that only new steam generating plants of Ontario Hydro stand between the province and a return of the serious power rationing of 1948. Reservoirs are only 54% full, and river flow is down to 22,500 cu ft per sec.

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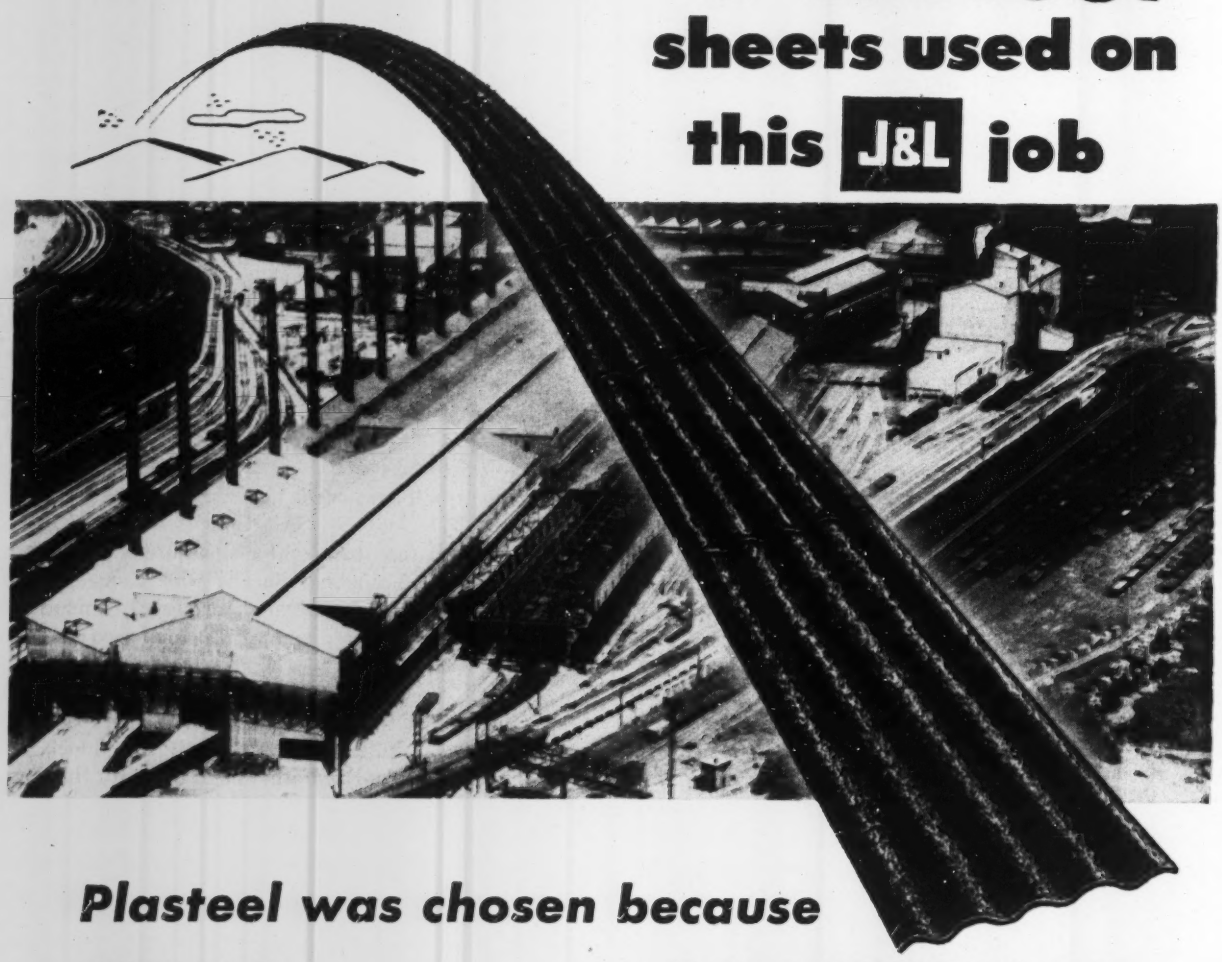

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WASHINGTON OBSERVER

Construction trends are giving Washington a new round of doubts about the future of business. Behind it all is the fear of a recession, and the Administration's determination to do what it can to head one off.

The Eisenhower team is all optimism. For every downturn, they cite a compensating upswing. For every dark spot, they find a bright one.

The notes of caution come from the old-line "professionals," technical experts who have been in Washington for years—career economists and construction men.

•

Construction figures tend toward the dark side:

Plant and equipment spending has been high for years, and the figuring is that it can only go down, and now is the time.

Housing starts have been down for three months in a row. This isn't enough to prove the end of the boom, but it's a figure that carries a lot of weight, psychologically and otherwise.

Government construction is still under the lid, and chances are for more cuts as long as the budget stays in the red. That will be another 18 months or two years.

On the bright side are all those things keeping the boom high.

Consumer spending is still going strong. It's been the foundation of the postwar boom, and many experts expected the end of the Korean fighting would mark a turning point. But nothing happened.

A significant upturn in construction outlook counts heavily in the forecasting. Last November officials predicted $33.3 billion for total U. S. construction this year. A couple of weeks ago they raised this estimate by $1.3 billion to $34.6 billion for this year.

•

Furthermore, stimulants to business are coming:

Business will get a tax cut Jan. 1 when excess profits tax finally dies. Consumers get a tax cut at the same time—a 2 to 11% reduction. A cut in down payments on FHA-insured homes is in the cards when officials think it's needed.

•

To warn quickly against the onset of a real recession the White House is considering a new system of economic reporting. Walter Williams, Undersecretary of Commerce and White House aide, is in charge.

The idea is to pick a large group of experts from all over the country to report significant developments by wire to the White House every month or oftener, if need be.

•

It's too early yet to detect a trend in the antitrust actions of the new Administration.

Dropping of the eight-year-old suit against the Cement Institute (see also p. 98) and some 89 cement companies stirred a lot of speculation. But Antitrust Chief Stanley N. Barnes noted that the original purposes of the suit had long since been achieved: dissolution of the institute, end of basing-point pricing, and end of identical bids on government contracts.

But other cases aren't likely to be dropped including those against building materials producers.

A new procedure, however, is being tried which could make a lot of difference. Barnes has a big case all ready for filing—but first company lawyers will be called in to see if it can be settled.

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Administration shakes up construction agency heads

Changes in top command come faster as new policies go into effect—Engineers begin to emerge as top men

Federal construction agencies are regrouping and shaking down to Eisenhower dimensions. Old-line organizations are in process of revamping for greater efficiency, and a couple of new ones are looking for men to fill high-level jobs.

For most agencies, the procedure consists mainly of a weeding out and stripping down to handle a lessening work load at lower cost. In others, the cost saving is to be gained by tightening up the organization to carry an equal or greater load with fewer people. Both processes lead frequently to the wiping out or vacating of some policy posts. In many cases, engineers are emerging on top.

• **Interior shows line**—Interior Department reorganization offers some prime examples of the agency shakeup under way in Washington. Reclamation takes first place in the Interior list.

In June, Reclamation made an 11% personnel cut that dropped more than 1,500 from the bureau payroll. Next, top Interior officers in cooperation with the new Reclamation Commissioner, Wilbur A. Dexheimer, appointed a five-man survey team to study the whole Reclamation machine and submit suggested improvements by Oct. 1 (ENR Aug. 20, p. 25). Further consolidation will come after that date, both in the field and in headquarters offices.

Separately from the main remodeling job, Interior officials went ahead quickly with a shakeup of Reclamation policy positions. First they got the Civil Service Commission to approve a reclassifying of the three Assistant Commissioner posts, putting them into the new Schedule C category (confidential or policy positions). Men in Schedule C jobs can be replaced at will.

Last week Secretary Douglas McKay announced that Dexheimer had abolished one of the three Assistant Commissioner posts, vacated another by transferring the incumbent, and retained the third without change. Under the first of these actions, wiping out his position as Assistant Commissioner for Design and Construction, apparently means that Kenneth A. Markwell is slated to leave the bureau.

Demoted, but not dropped was the second man, Goodrich W. Lineweaver, who had been Assistant Commissioner in charge of Programs and Finance. Lineweaver becomes an assistant to Dexheimer, advising on legislation and finance. The only Assistant Commissioner untouched by the changes was Harvey F. McPhail, who will remain in charge of project planning and power utilization.

• **Surveys first**—Survey teams are the favored examination tool of Interior. Like Reclamation, two other Interior agencies are now being examined by teams made up of insiders and outsiders.

A Geological Survey study committee is to report Dec. 15 on that organization and its operations. No real policy problems are involved in this study. Interior bosses find that USGS consistently has resisted all past efforts to key it to political considerations. Some tightening up of the organization is expected to follow the study.

In the National Park Service, two survey teams are at work, one in the office and the other in the field. The two teams complete their study periods on the same date, Sept. 15. They are then scheduled to synchronize their reports.

• **BPR changes**—A quite different type of survey has been completed in the Washington office of the Bureau of Public Roads. A management consulting firm—Booz, Allen and Hamilton, of Chicago—last week turned in to Commerce officials and Public Roads Commissioner Francis V. du Pont a report on its two-month study of procedures in Washington headquarters of BPR.

This study proceeded on a week-to-week basis, with the examiners reporting regularly to the Commissioner, who in turn conferred with his deputies and department heads. Du Pont said last week that the final report of the consultants had still to be analyzed. No decisions will be made, he said, until they have been discussed with his four deputy commissioners. The discussions will have to wait until October, when all four deputies will be in the office. Two of them are now in the field.

• **And on Army Engineers**—A third kind of survey has been under way for two and a half months in the Army Corps of Engineers. Lt. Gen. Samuel Sturgis, Chief of Engineers, ordered a staff study by the corps of the entire organization. With military and civil works construction due to taper off,

SHAKEUPS IN U.S. CONSTRUCTION AGENCIES

Here's a rundown of current changes in personnel and organization of the key bureaus handling Uncle Sam's construction programs.

Department of Interior

• Bureau of Reclamation—
Design and Construction: Kenneth A. Markwell is out, and the job is abolished.
Programs and Finance: Assistant Commissioner to be appointed to replace Goodrich W. Lineweaver, reduced in rank.
Reorganization: Report by survey team due Oct. 1.

• National Park Service—
Reorganization: Recommendations of committee due Sept. 15.

• Geological Survey—
Reorganization: Report of team due mid-December.

Department of Defense

Construction policy: three top aides to Assistant Secretary Franklin G. Floete to be appointed.

• **Army Engineers**—changes coming to gear agency to smaller workload.

Department of Commerce—

• Bureau of Public Roads: changes in Washington operations expected from management engineering report already made.

• Industry divisions: non-government executives to get appointed to head up construction and water resources shops.

Department of Agriculture—

• **Rural Electrification:** two new men take over power and telephone programs.

he asked for a report on how the Engineers' organization could be consolidated in accordance with the decreased work load in prospect during Fiscal Years 1954, 1955 and 1956.

Field offices undoubtedly will be pulled together and reduced in number as a result of this study.

• **Engineers to top**—In Agriculture's Rural Electrification Administration, as in the Reclamation Bureau, the shakeup in policy posts is bringing engineers to the top. REA Administrator Ancher Nelson last week appointed two engineers as Acting Assistant Administrators: J. K. O'Shaughnessy to head the telephone program and Roy G. Zook to direct electric operations.

And in the Defense and Commerce Department, new policy posts are opening up for qualified construction men. The Assistant Secretary of Defense for Properties and Installations has decided to split his big new job among three division chiefs or deputies who will work directly with him. One of these men will head military public works construction, another will be responsible for real property management, and the third will handle real property maintenance. All three, of course, will operate with Mr. Floete as policy people on the staff level in the Defense Department.

• **Jobs open**—In Commerce, men of executive experience are needed to head two divisions concerned with construction in the upcoming Business and Defense Services Administration. The two divisions are: (1) construction and building materials and (2) water resources.

Last week, the BDSA combination of words apparently had been approved by Secretary Sinclair Weeks as the best descriptive title for the new agency. BDSA will carry on the peacetime, continuing functions of the National Production Authority and will absorb Commerce Department's Office of Industry and Commerce.

Each division requires a director from industry, to be rotated every six months, as was done in NPA. Under him is to be a permanent career man serving as his deputy and operating executive of the division.

The construction division starts off with one virtue that for a long time appeared lost. Commerce officials have been able to retain a nucleus of three experienced staff members for the Construction Statistics Branch. For a while, it looked as if all these competent staff people would be wiped out through "bumping" by other Commerce employees who possesed more Civil Service "rentention credits" than they did.

TVA claims victory in power-cost race

Comparison of costs at rival plants to supply Paducah AEC installation gives big advantage to TVA work

Wasting no time on sympathy for its private-power rivals, the Tennessee Valley Authority this week was claiming at least a first-round victory in a contest with the private interests to supply power to the huge Paducah, Ky., installation of the Atomic Energy Commission.

TVA is now completing a 10-unit, 1,350,000-kw plant at Shawnee, Ala., to supply part of Paducah's power needs. Across the river, at Joppa, Ill., Electric Energy Inc.—is building a six-unit 937,000-kw plant.

The Joppa plant, endlessly tied up in jurisdictional dispute strikes, was shut down several weeks ago (ENR Aug. 13, p. 21) while the owners dismissed Ebasco Services, Inc., as contractor (though retaining the firm as engineers) and turned the job over to Bechtel Corp.

• **Victory?**—In an 18-page statement released to the press last week, TVA's Knoxville headquarters said:

"The facts now available . . . show that TVA's unit construction costs are lower and its rates more favorable to AEC and the nation's taxpayers."

The big agency marshaled these facts to back its claim:

Figures now on file with the Securities and Exchange Commission show that the estimated costs of EEI's four original plant units—exclusive of switchyard and transmission lines—have increased from $81 million in May, 1951, to $118.3 million in June, 1953. The cost per killowatt of capability for the plant (at Joppa) has risen . . . from $126 to $184."

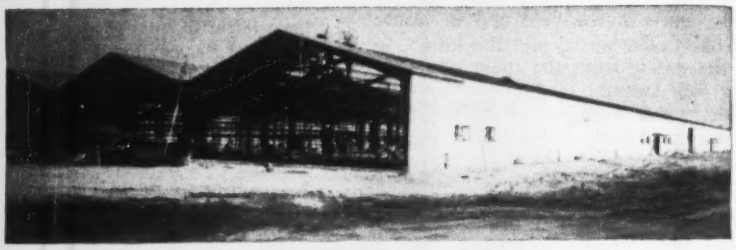
"The two additional units being built are estimated to cost even more—the latest figure being $63.2 million, or $198 per kw of capability."

By comparison, TVA's statement pointed out, its 10-unit Shawnee plant is estimated to cost $216.5 million—or less than $145 per kw of capability.

• **Comment**—"Whether the power plants to serve AEC are built by TVA or by private industry," TVA's statement said, "the taxpayers . . . will pay for them.

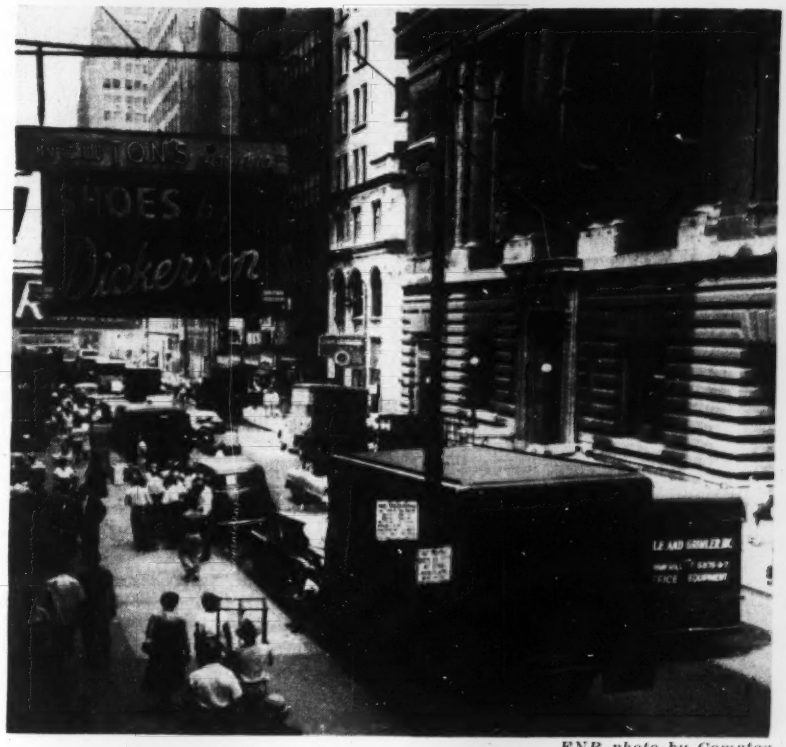
"The taxpayers will pay for the plant built by the private companies through the rates paid by AEC for power. The companies will, by the terms of their contracts, recover the costs of the plants through their power bills in 25 years—and at the end of that time will still own the plant. In addition (through AEC power bills) the taxpayers will pay interest at a higher rate than that available to the government, and will pay a guaranteed 8% on the common stock of EEI. And the taxpayers will also pay all taxes that happen to be levied against the private companies.

"On the other hand, TVA's plant is being built through appropriations during construction. The cost will be absorbed by AEC in its power bills—just as with the private companies. But there is one big difference: TVA will repay, by law, to the U. S. Treasury all the money invested over a period of 40 years—and the government will own the plants."



Exposition building erected fast

Prefabrication of the structural frame and walls of the Merchants and Manufacturers Building at the Ohio State Fairgrounds enabled George Sheaf & Co., of Columbus, Ohio, to meet a 10-week erection schedule. The structural frame consists of standardized structural steel rigid frames fabricated by the Butler Manufacturing Co. of Kansas City, Mo. Exterior walls, which were bolted to the steel, are 8x8-ft and 8x10-ft sandwich panels only 5 in. thick, with thin concrete facings and a 2-in. thick insulation core of glass-fiber board. In less than five days 204 panels were placed to enclose the 500x150-ft building, averaging 4,200 sq ft per day. The panels were precast by the Marietta Concrete Corp., Marietta, Ohio.



ENR photo by Compton

THE ENGINEERING SOCIETIES BUILDING in New York fronts on a street that now is a main thoroughfare of New York's big garment industry.

Engineer societies deny Chicago site offer

But group, pushed for space in New York headquarters, considers offers from Washington, Pittsburgh

Reports current last week that the offer of a site in Chicago for a new building to house the national engineering societies had been made to those societies are without foundation, according to John H. R. Arms, secretary of the United Engineering Trustees, owners of the building in New York.

No offer has come to UET, Mr. Arms says, despite a statement published in Chicago papers quoting John Rettaliata, president of Illinois Institute of Technology, as saying that a free building site on the institute's 110-acre campus has been offered as a first move of professional and business leaders in Chicago to make that city the engineering capital of the United States.

A site in Washington has been offered to the societies, and it is understood that a site in Pittsburgh will be offered to UET when it meets there Sept. 11.

The present Engineering Societies Building on 39th St. in New York was given to the societies by Andrew Carnegie nearly 50 years ago as a means for bringing the societies into greater unity as a profession. It has a floor area of 118,000 sq ft, including space occupied by the combined libraries of the societies. At present two of the societies are renting a total of 6,000 sq ft in other buildings. Mr. Arms estimates that 220,000 sq ft would be needed to house all the organizations that logically could be grouped in such a building.

More space, Mr. Arms says, has been a problem of UET for a long time. Some years ago, consideration had been given to putting up a much bigger building covering the site of the present building and that of the Engineers Club immediately north of it on 40th St.

Just a building site will not solve the problem of the United Engineering Trustees, according to Mr. Arms. A larger building, or funds to cover most of the cost of such a building in addition to a site would be needed before UET could even consider giving up its present building.

Willis F. Thompson, a member of the real-estate committee of UET and a vice-president of ASME, says that a final decision will not rest on whether Chicago or any other city wants the prestige of having the headquarters of the engineering societies but on what location is best for the societies. In his opinion, New York has assets that no other city can offer.

Block filter plant

Illinois court halts work on $85-million Chicago water improvement

Construction of Chicago's $85-million, 950-mgd central district water filtration plant ground to a physical and legal halt this week, after a Cook County circuit court (Aug. 28) ruled against the construction just north of Navy pier.

The court's decision was rendered in favor of a group of 53 property owners and the North Central and North Michigan Avenue Assn. The owners and the associations had filed suits a year ago (ENR July 17, 1952, p. 68) on the ground that the new plant would impair navigation, and that construction of the plant (adjacent to the Chicago Park District's Lake Shore Boulevard System) would violate convenants made to landowners in 1891 relative to extension of the drive. The park district itself was enjoined with the city from consenting to construction of the plant.

• **Blocks work**—Also forbidden to continue its activities was the Great Lakes Dredge and Dock Co., which holds a $6.6-million cofferdam contract to enclose the 61-acre site (ENR June 19, 1952, p. 51). Great Lakes has to date finished nearly 30% of this work, with nearly 360,000 cu yd of sand and clay, and over 60,000 tons of protective riprap and large stones having been placed along the east and other sides.

Low bids totaling more than $14.8 million, for construction of six miles of large-diameter tunnels to connect the filtration plant with existing city intakes and pumping system were taken last month (ENR Aug. 27, p. 25) but probably won't be awarded in view of the court ruling.

• **Court dictum**—Circuit Court Judge Daniel A. Roberts based his ruling on the 1891 covenants to property owners, and threw out permission obtained from Army Engineers as valueless.

The jurist added that the State of Illinois acted outside of its authority when it amended laws on Oct. 12, 1949, to permit transferring title to submerged lands to municipalities for the purpose of construction of water filtration plants. The court held that such lands "are held in trust by the state for all the people of the state."

Road plans simmer

Turnpike extensions, gas-tax projects, new-type structures on the books

Reflecting the nationwide pressures for highway construction and improvements, new developments this week spotlighted plans for new turnpike extensions in two states; a new type of bridge in one state, financing troubles in a fourth.

In Virginia, a legislative study committee—not without realization of the political dynamite contained in the move—recommended that the state boost its tax on gasoline by one cent per gallon. This action, which would add the state's levy on each gallon, would put the total tax at seven cents—one of the highest in the United States. (One state, Mississippi, collects eight cents, six others collect seven.)

The rise in the tax would provide an estimated $10 million extra revenue annually—about half what the State Highway Department told legislators it needs to maintain a reasonably adequate highway system for the state. Resort to added taxes seems to be necessary, because the state's long policy of pay-as-you-go seems to preclude financing by bond issues.

• **Turnpike plans**—In western Pennsylvania, pressure grew to force extension of the Pennsylvania Turnpike on a northwestern leg, to connect the Youngstown, Ohio, district with Pennsylvania areas. The new drive is being sparked by the newly organized Beaver-Valley-to-Erie Turnpike Extension Assn., made up of businessmen in the areas of the two states affected. The route is one of several toll highways that have been proposed around Youngstown.

And in Virginia, the Richmond city council endorsed plans for the creation of special state authority to build and operate a 36-mi, $57-million Richmond-Petersburg toll road.

• **Bridges**—In Massachusetts, the State Department of Public Works said it was seeking a license to build the Roy C. Smith Bridge over the Neponset River in the Dorchester Bay area of Boston Harbor—the bridge to be a part of the planned southwest expressway through Boston and Milton. The structure would be 343 ft long, have a clearance of 30 ft over mean low water, and its fixed spans would carry a 100-ft wide roadway.

At the same time, the public works office said it would open bids early in September for approaches and superstructure of a bridge over the Westfield River in West Springfield. The plate girder bridge will have an overall length of 580 ft in three spans. It would be part of a relocation program for State Route 3.

And in Delaware, the State Highway Department announced that it would inaugurate "an entirely new plan" of bridge construction with the erection of a structure on the southern fringe of Frederica—a bridge composed of prestressed steel, concrete and timber.

The bridge will be factory-fabricated, except for foundations and abutments. The deck will consist of precast, prestressed slabs 24 ft by 3 ft, and the superstructure will be steel.

Study S. F. Bay crossings

Recommendations for a 5-year study of San Francisco Bay—including investigation of some half dozen plans for construction of salt water barriers across arms of the bay—have been made by the San Francisco District Engineer's office. The study would involve construction of a one-acre engineering model of the bay—a model which San Francisco voters refused to finance in last November's election.

Western engineers meet

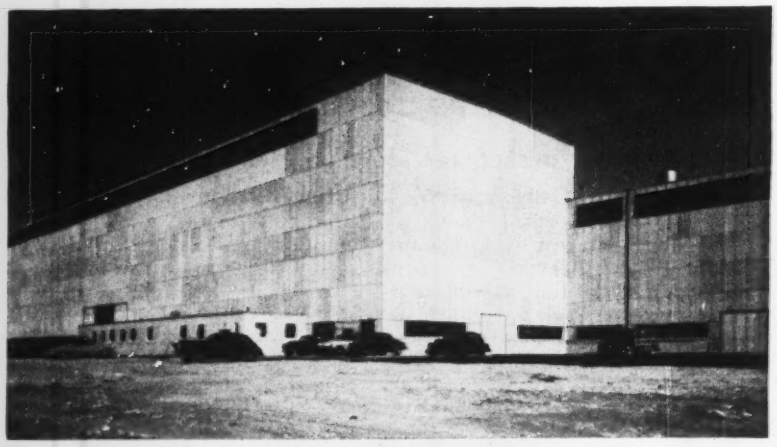
R. V. Smrha of Topeka, Kan., chief engineer of the Kansas Division of Resources, is new president of Association of Western State Engineers.

He was elected at the close of the 26th annual convention held by the organization in Reno late in August. Smrha, who was vice-president last year, succeeds Hugh Shamburger, Nevada state engineer. New vice president is Joseph M. Tracy, Salt Lake City, who is Utah state engineer.

Three major resolutions were adopted. One called for development of an accelerated basic water data and mapping program. The group said it would take an active part in getting proper legislation before Congress, and would help develop the necessary support for its passage.

The engineers also recommended that specialists in the Division of Irrigation of the Soil Conservation Service retain their identity and functions in irrigation and research.

A third resolution urged support of measures which will assure maintenance of watershed conditions for the maximum yield of usable water.



Manufacturer moves to country

This $3-million plant for the S. Morgan Smith Company of York, Pa., builders of hydraulic turbines, is located on a 136-acre tract in open country, about two miles from the company's present plant in the heart of the city. The new plant will handle much larger units than were fabricated in the city location—such as parts for the 111,300-hp turbines for the power plant at McNary Dam on the Columbia River.

The new layout consists principally of two parallel bays, 90 ft wide, one 650 ft long with 30-ft clearance under the crane hook, and one 400 ft long with 50-ft clearance. Total floor area for the new buildings is 95,000 sq ft.

The buildings are of conventional steel-frame construction with exterior walls of concrete block and corrugated asbestos siding. Roofs are of poured gypsum slabs.

A special engineering problem in construction was the precise leveling required in settling the beds for large machines, such as the 40-ft vertical boring mill.

Designs were made by Day & Zimmerman, Philadelphia. The consulting firm of Dietz A. Smith of York, Pa., acted as resident engineer for the owner, and the general contract was held by Baltimore Contractors, Inc.

Ohio turnpike

Legal troubles mount as third of Ohio road is put under contract

Although recent contract lettings saw more than 86 miles of the controversial Ohio Turnpike put under contract, legal troubles of the state's harried turnpike commission seemed to be mounting almost as fast as contracts went out.

Last week, the troubles were three:
- The city of Elyria threatened suit to force the turnpike to be re-routed outside its city limits.
- A Cincinnati law firm served notice it would sue for $250,000.
- The state's Board of Control apparently was getting set to turn down a request for $650,000 with which to start a second arm of the pike (to tie together Cincinnati, Columbus and Cleveland).

The commission had awarded contracts totaling $26 million for 86 miles of roadway in four counties, to bring 35.9% of the 241-mile express highway under contract. Total value of construction awards that have been issued to date (including four large bridges) is $78.6 million.

• **Lawsuit 1**—Refusal of the turnpike commission to re-route the toll road north of the city of Elyria, rather than through a section of the city itself will force the city to erect a legal road-block, Mayor Henry W. Ault announced.

Ault made the threat after the commission said it "had no intention" of re-routing the road. "The commission is a super bureau, operating under the delusion that it is a law unto itself," angrily commented Ault. "We shall erect a legal road-block to the dictatorial efforts of the commission to jam this road . . . through our city, in direct violation of the law."

Loss of property valuations was given as the city's principal reason for objecting to the proposed route.

• **Lawsuit 2**—The law firm of Steer, Straus & Adair of Cincinnati, said it would sue to recover $250,000 that the commission paid to a land title company under a contract that Common Pleas Court has declared is illegal. The law firm said it was representing its client, who is a turnpike bondholder.

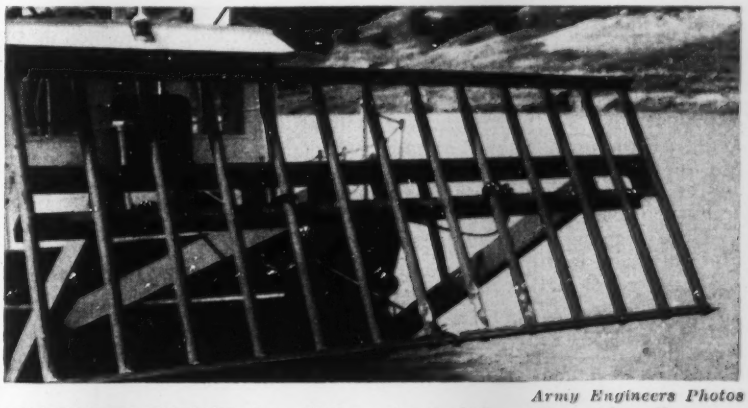
The attorneys laid down an ultimatum to commission members, pointing out a Common Pleas ruling which said that a turnpike contract for land purchase with the Land Title Guarantee & Trust Co. was illegal. (The title company, it was charged in that action, had practiced law illegally in connection with title work on the turnpike route.)

• **Money troubles**—Meanwhile, plans for the second turnpike (known locally as "Three C" turnpike) seemed dead before they were well under way.

Armed with a report that such a road—connecting three of the state's biggest cities—was feasible, turnpike commissioners went to the state's Board of Control for $650,000 to finance a survey of the new route. The money would be, in effect, a loan, since it would be repaid out of revenues from bond sales.

But the five-member board contains two state legislators who have violently opposed turnpikes—and it takes a 4-1 vote (at least) to release board funds. So close observers figure the "Three C" proposal has no chance now.

SEAGOING DOZER—Army tug "Sales," flagship of the Army Engineers' fleet at Fort Randall Dam, tows off tree-trunks that blocked tunnel intakes, after using its "dozer" to push the trash away from tunnel mouth.



Army Engineers Photos

MAKESHIFT—Old drill rods, angle-irons, structural shapes, form "dozer."

Bulldozer swims instead of crawling

Army Engineer employees at Ford Randall Dam in South Dakota have been amusing themselves for some time trying to think up a proper name for the device shown on the box of the tug seen in the accompanying photos. "Floating bulldozer," "trash rake," "boat dozer" are among the suggestions.

By whatever name, though, the device has eased a problem common to all new reservoirs—removal of floating trash that becomes loosened as the reservoir (now covering 45,000 acres) inches up the sides of hills at the rate of 6 in. a day.

The dozer consists of a grille, 13 by 6 ft, built at the site out of old drill rods, odds and ends of structural shapes, and rigging. The grille is hinged so that it can be lowered or lifted by means of cables.

The 45-ft, 200-hp tug uses its "dozer" to push debris away from tunnel intakes, then tows the trash to disposal sites.

Atom plant needs $26 million in roads

Ohio faces problem of providing—and paying for—roads to bring 29,000 workers to Pike County installation

When the Atomic Energy Commission decided to construct its $1.2-billion uranium processing plant in Ohio's Pike County it turned up some tricky problems for the state. Not the least of these was finding funds ($26 million) to finance highway improvements in the area.

The need for road work is urgent. By next spring's construction peak at the sprawling plant, an estimated 29,000 workers will turn into U. S. Route 23—the main highway running past the project—every afternoon. Pulling the cork out of this traffic bottleneck meant converting Route 23 into a 46-mi, four-lane highway between Chillicothe and Portsmouth.

Today, reconstruction of Route 23 is progressing fast.

- Over $9 million worth of road work is already under contract.
- Another $6 million (for 10½ miles) will be awarded Sept. 4.
- Additional contract sales are scheduled for late September and October.

By June of next year 75% of the work should be completed. A few large jobs will stretch out to September. And one 11-mile section—between Waverly and Chillicothe—may run into 1955.

While the goal is in sight, the financial road still has a few bumps ahead. From the start Ohio has grappled with the matter of funds (ENR Sept. 18, 1952, p. 72). The first contract was awarded last September for minor resurfacing to handle the immediate influx of traffic. Then lack of money held up further progress for three months.

The state looked to the federal government for aid. It hoped for full financing—or at least for help similar to that given other areas where large government projects were launched.

Last fall the Bureau of Public Roads and the Ohio Highway Department reached an agreement: The U. S. would contribute $10 million in access road money plus $7 million more in matching money.

So far Ohio has wheedled enough funds to pull itself partially out of the dilemma. But it still needs an additional $2 million of access road money from the federal purse to place the balance of work under contract.

New fire protection code governs electrical work

A new code that affects electrical installations on construction in all U. S. communities—the National Electrical Code—was published in its latest revision this week, superseding the last previous edition, published in 1951.

Prepared under the control of the National Fire Protection Association of Boston, the code is said to be the most widely used safety standard of its kind. The 1953 edition has been adopted by the American Standards Association.

Some significant changes are:

- Electrical receptacles will be required to be designed so that they cannot be used interchangeably in different circuits of different voltage, frequency or types of current.
- Authorizes liberalization of the use of armored cable in air voids of cinder block walls, except where subject to excessive moisture.
- An entirely new article is included on mineral insulated-metal sheathed cable, permitting its use for services, feeders and branch circuits in both exposed and concealed work, dry or wet locations, under plaster, or embedded in plaster or masonry.
- Gas piping is deleted as a means of grounding electrical circuits.

Minnesota, Wisconsin join on pollution control

Pollution-control and public health advocates this week saw another move completed in a long-standing program to control pollution in river waters of the north-central U. S. Wisconsin and Minnesota signed a pact for pollution control of the Mississippi and other streams.

The two states agreed to exchange information and enforce uniform standards on the boundary streams between them.

Gradually, all five states of the area—Wisconsin, Minnesota, Illinois, Iowa and Michigan—are moving towards interstate compacts to control pollution, observers pointed out. Wisconsin previously has made agreements with Illinois and Iowa, and has proposed similar pacts with Michigan.

- **First move**—The first move for cooperation between Wisconsin and Minnesota resulted from pollution of the St. Louis River, which originates in Minnesota and empties into Lake Superior at Duluth and Superior. Wisconsin ordered the municipality of Superior to build sewers and a treatment plant to end the pollution.

But Superior officials objected, on the ground that there would be little beneficial result from a plant there, so long as Duluth was negligent in treating sanitary wastes.

To meet this criticism, the two states discussed a compact, which has now been signed. Under terms of the pact, each state will "require effective correction of existing pollution, and prevent additional contamination." All sewered cities must have treatment plants, plus chlorination, and secondary treatment where necessary. Uniform regulations will also apply to industrial wastes.

Pollution course offered

The University of Texas this fall will offer an engineering course in ways to prevent industrial waste pollution of streams and water supply sources.

Ernest F. Gloyna, assistant professor of civil engineering, who will teach the course, said that further industrialization of the state will depend to a great extent upon availability of trained personnel in industrial waste disposal techniques.

Area pay scales

Labor Department sets them too high, AGC says

The Carolinas branch of the Associated General Contractors is taking a fighting stance against the Department of Labor for what the group terms "policies of fixing wages higher than those prevailing for government construction projects."

In a statement released at Charlotte, N. C., by managing director Robert Patten, the association called on Congress to investigate the methods of the Labor Department. What AGC wants is legislation which would provide for a judicial review of minimum wages for government projects before some impartial Labor Department tribunal of decisions.

The Labor Department, says AGC, is disregarding the economic safety of the nation in determining minimum wages which are—in many areas—considerably higher than those actually being paid on private, state and municipal construction works. The group claims this policy sets up two wage rates and ultimately causes all wages to be unreasonably increased.

It was the situation at a multi-million-dollar ammunition loading terminal under construction at Wilmington, N. C., that set the fuse to the whole explosive wage question.

Minimum salaries on the project were set in specifications dated May 5. On July 1 wages of numerous classes of workers were substantially increased. AGC protested, Patten says, because there had been no changes in wages or cost of living between May 5 and July 1.

Late in July a hearing was held in Wilmington before a U. S. referee of the Department of Labor to determine minimum wages for the terminal workers.

Then, on Aug. 7, the Corps of Engineers informed AGC that the increased wages would stand; also, that a number of additional increases would be made.

In answer, directors of AGC's Carolinas branch adopted two resolutions. The first—a protest that AGC didn't get a transcript of the hearing until it was notified of the decision, thus preventing it from filing a brief for the Labor Department's consideration. The second—an opinion that construction wages have not only risen high enough to cover cost of living increases but are in excess of any increases in productivity.

Unusual tragedy

A small buried tree slid up the blade of a moving bulldozer and built up enough tension to kill the operator as it whipped back over the grader.

The unusual tragedy occurred at a shopping center site in Mayfield Heights, Ohio.

The bole of the tree, 7 in. in diameter was buried in the path of the grader, which was being used to backfill cleared land for parking facilities.

Much like a giant switch, as the bulldozer pushed against it, the tree snapped back up over the blade, knocked down the machine's upright exhaust pipe and pinned operator Everett C. Diehl against the seat.

State outlaws closed shop

The closed-shop question has risen in two states—Alabama and Virginia.

• **In Alabama,** a bill to outlaw the closed shop has been passed by the state senate and sent to Governor Gordon Persons. Patterned after Virginia's "right to work" law, the bill would make it unlawful to require an employee to belong to a labor organization. It also would prohibit the checkoff of union dues where an employee objected.

This bill was the most bitterly contested measure of the legislative session.

• **In Virginia,** the state won a four-month injunction restraining a Richmond plumbers' union and several plumbing contractors from violating its right to work law. Attorney General J. Lindsay Almong's next step is expected to be a request for a permanent injunction.

The temporary order seeks to enforce that section of the law which says: No person shall be deprived of his right to employment because of membership or non-membership in a labor organization.

Whatever the outcome in these two states, across the country the closed shop still holds a slight edge. In 13 states, compulsory unionism has been banned but—earlier this year 11 states rejected proposals for new laws to outlaw it and five more states killed bills to repeal or modify existing statutes of this type.

ENR photo by Compton

PORTRAIT of a worried union boss; John O'Rourke watches his power fade.

Beck moves in

By-passes local leaders to end N. Y. truck strike

Pressured from all sides, Dave Beck, nation's boss teamster, suddenly reversed his hands-off policy and ordered a settlement of a strike of New York City building materials truck drivers.

The strike, already partially settled, has cost New York construction two and a half of the year's best building months and has idled more than 150,000 building tradesmen.

Here are developments up to press-time:

• Beck has by-passed leaders of teamsters Local 282 and has empowered a three-man team to deal directly with striking rank and file.

• He has ordered a settlement by Sept. 1. If none is reached, he wants drivers to go back to work pending arbitration. Beck may put the local, torn by a struggle for control, under trusteeship.

• John O'Rourke, facing loss of power as president of Local 282, is said to be making a drive for members of a new local on booming Long Island, where construction trucking has been resumed. Striking drivers, with time on their hands, have formed a squad to break up meetings at which organizers seek support.

Paducah again

Project closes as carpenters press subs to match raise of prime contractor

They've walked out again at Paducah. No-strike pledge or not, most of the 15,000 construction workers at the $1-billion atomic energy plant in northwestern Kentucky honored an "unauthorized" picket line of carpenters last week.

As a result, the project was shut down for another time.

A week ago a project-wide, no-strike agreement was worked out at Paducah. The peace agreement had been reached between contractors and international leaders of the American Federation of Labor building unions.

Immediate issue in the walkout was whether or not five small subcontractors of prime contractor F. H. McGraw & Co., should match wage boosts and travel pay granted by McGraw in early August.

• **The Paducah plan**—Here's how the wage demands were formed: A few months ago carpenters in the Paducah area negotiated with home builders and other contractors not connected with the atomic energy factory. The little contractors, who hire a total of about 400 carpenters, were agreeable to the granting of wage increases and travel pay.

The wages agreed upon became the "prevailing area" pay. So, the thousand-odd carpenters working for McGraw went after increases. They got them.

Now the 100 carpenters who are on the five subcontractors' payrolls want more money too.

• **Showdown?**—Trouble is, the subcontractors are working on a lump-sum basis and are in no mood to sacrifice profits.

The carpenters have made a suggestion that the Atomic Energy Commission foot the bill. There have been indications that the AEC, McGraw and the subcontractors may balk at the pressure, and possibly a showdown may be planned.

Some 700 workers still are on the job. A lone-wolf sheet metal workers' local, with headquarters in Louisville, Ky., has continued working. So have two or three hundred laborers. But there have been no charges of scabbing, because the carpenters, at least up till press time, have maintained their picket line only on an unofficial basis.

RAY RODGERS fills out NLRB.

Rodgers named to NLRB, gives Eisenhower edge

Pro-labor policies of the National Labor Relations Board likely will be modified, gradually, now that the board will have a 3-2 majority of members appointed by the President.

One which likely will stick, however, is the Denver Building Trades policy decision, upheld by the U. S. Supreme Court, which holds it an unlawful boycott for union members on a construction project to picket or strike to force the general contractor to stop doing business with a non-union subcontractor.

• **New man**—Latest Eisenhower selection for NLRB is Philip Ray Rodgers, on the staff of the Senate Labor Committee since the Taft-Hartley Labor Law was passed in 1947. In the present Republican Congress he has been staff director of the committee.

Ray Rodgers, as he is called, is 37. A native of Bountiful, Utah and a graduate of the University of Utah. He was secretary to former Sen. James J. "Puddler Jim" Davis of Pennsylvania during World War II. Davis was Secretary of Labor in the Harding, Coolidge, and Hoover administrations. He has a law degree from George Washington University and is member of District of Columbia bar.

Rodgers succeeds John M. Houston, whose five-year term expired Aug. 27.

Guy Farmer of Washington was made NLRB chairman in July (ENR July 23, p. 28).

The third Eisenhower appointment is to fill the unexpired one year of Paul L. Styles' term. Styles resigned Aug. 31 to engage in industrial relations practice in Toledo, Ohio.

It is reported that Eisenhower is considering Laurence E. Gooding, chairman of the Wisconsin Employment Relations Board, for the post, but that Secretary of Labor Martin P. Durkin is against him. Durkin, president-on-leave of the AFL plumbers and steamfitters, has been urged to oppose Gooding by AFL union leaders in Wisconsin who have not liked Gooding's record as Wisconsin Employment Relations Board chairman, it is reported.

At the same time, the Wisconsin Federation of Labor convention unanimously adopted a resolution praising Peter T. Schoemann, Durkin's stand-in as plumbers' union president, for his "pattern of plunder" attack on the Eisenhower Administration and rebuking Durkin for his defense of the Administration's labor record.

Court dismisses overtime suit against Navy

A $1.5-million overtime pay suit brought by 4,600 workers on World War II Navy projects in the Pacific has been dismissed by a U. S. Federal Judge in Honolulu.

Workers claimed that their employers—members of an association called Contractors, Pacific Navy Air Bases—violated the Fair Labor Standards Act by not paying time and a half for over 40 hours' work.

But the judge held that the 40-hour work week set up by the act did not apply to defense contracts in the Pacific during the period 1939 to 1945.

The government was represented in the action against the association because the work involved was done on a cost-plus basis and the Navy would have had to foot the bill if the case had been lost.

Labor briefs . . .

• **Their cup runneth over**—In Wierton, W. Va., carpenters will have coffee—and future negotiators will have food for thought. New union contract signed with these workers has one clause—perhaps first of its kind—which provides for a "legal" five-minute coffee break every day at 10 a.m.

• **Pink slip, not pressure**—Last week the National Labor Relations Board ruled that a worker can be fired under a union shop contract for failing to join a union—but that lesser pressure can't be applied against him. Case in question: Vacation pay was withheld from three employees of the Krambo Food Stores of Milwaukee, Wis., in a combined union-employer effort to compel them to join the Allied Independent Unions (affiliated with the Confederated Unions of America).

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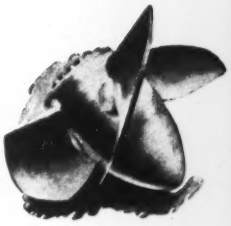

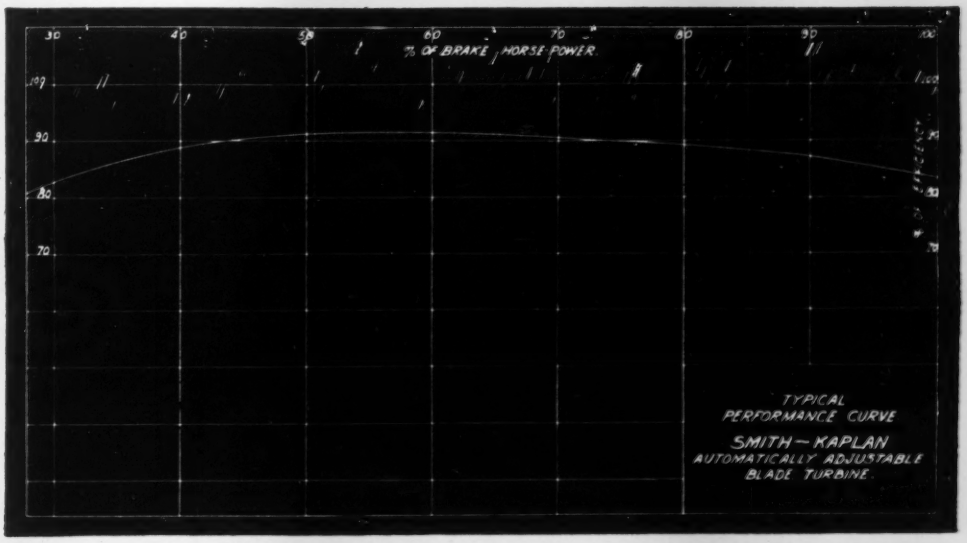

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SPECIFICATION	BAY CITY Model 45	Other ¾ Yd. Shovels
Weight (as shovel)	46,500 lbs.	
Power (std. gas)	81 HP @ 1200 RPM	
Engine Displacement	517 cu. in.	
Shovel Boom	19′ 0″	
Crowd	One Piece Chain	
Digging Radius 45°	28′ 1″	
Crane Boom (Std.)	35′ Pin-connected	
Crane Capacity, 10′ Rad.	28,500 lbs.	
Hoe Boom	20′ 0″	
Digging Depth	19′ 6″	
Bases	Cast Alloy Steel	
Crawler Bearing Area	24″ Shoes—5930	

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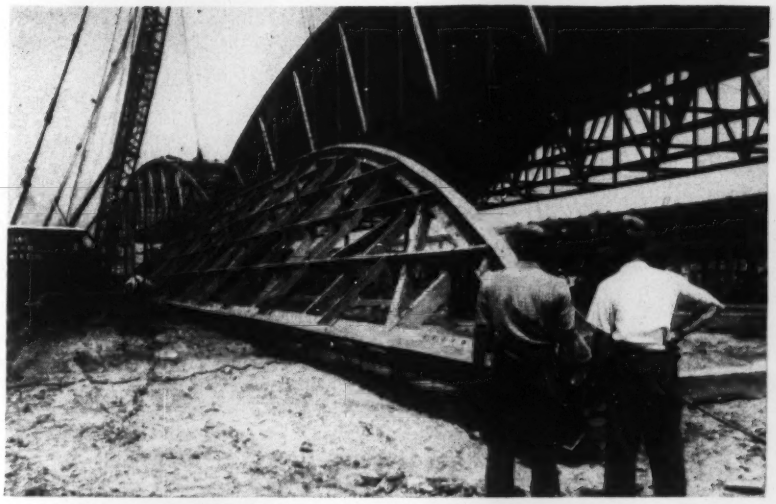


OUTERMOST TIMBER TRUSS with record 250-ft span was erected completely assembled at Westchester County Airport, N. Y.

Hangar's timber trusses set new span record

A new world's record for timber roof spans has been set by the bowstring trusses just erected for a hangar at Westchester County Airport, White Plains, N. Y. These trusses span slightly more than 248 ft, center to center of supports.

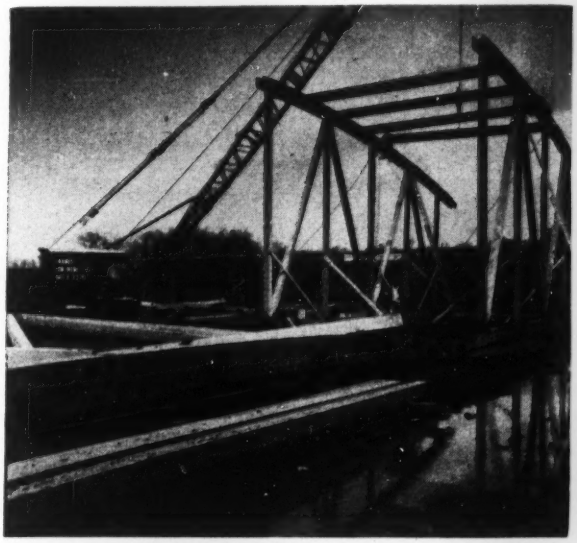
This span is 2 ft longer than the previous mark set during World War II by timber arched trusses built for dirigible docks, such as the one at Lakehurst, N. J. (ENR Oct. 22, 1942, vol. p. 576; April 22, 1943, vol. p. 542; and Aug. 26, 1943, vol. p. 320). If clear spans are compared, the new trusses are about 10 ft longer.

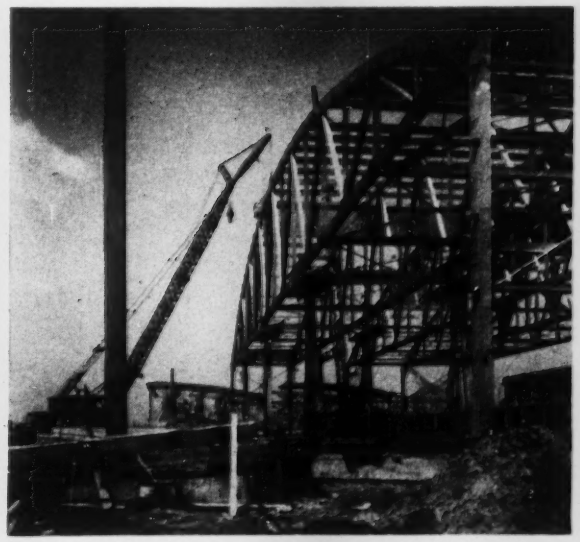
When the dirigible docks were built, their spans represented an increase of 25% over the previous record, held by 200-ft timber arches used for the 1939 San Francisco exposition buildings on Treasure Island.

• **One-piece chords**—In addition to their record-breaking span, the 250-ft long bowstring trusses are of interest because top and bottom chords are one-piece members. In recent years, it has been common practice to use chords composed of two timbers, between which web members are sandwiched. The Westchester Airport bowstring trusses, however, have glued-laminated chords 9 in. wide by 18 to 20 in. deep—fabricated from 2-in. plank bonded together with adhesive. Web members are connected to them with steel gusset plates, shear plates and bolts.

Glued-laminated timbers also are used as columns, to support the trusses. For wind bracing in the longitudinal direction, knee bracing connects the columns and truss bottom chords. In the transverse direction, horizontal forces are transmitted from lateral bracing between trusses, through steel tie-rod X-bracing between columns, to the ground.

• **Hangar highlights**—The building in





INTERIOR TRUSSES of 250-ft span were erected in pairs in 60-ft lengths (left) and supported on falsework until spliced (right).

TIMBER HANGAR with three 250x150-ft bays was built at relatively low cost, utilizing glue-laminated members.

which the record-span trusses are incorporated consists of a 750x150-ft hangar plus a 750x31-ft, two-story high leanto. Extending along the rear of the hangar, the leanto contains maintenance shops, offices and locker rooms.

The hangar consists of three 250x150-ft bays. It has a 4-in. thick concrete floor. Exterior end walls contain steel sash, with brick below and asbestos-cement siding above. Front walls above the doors, and rear walls also, are faced with asbestos-cement siding and steel sash. Heating will be accomplished with oil-fired unit heaters suspended from the trusses.

Electrically operated, horizontal sliding doors, made of 13-ga steel, can be moved into pockets to provide a 225x30-ft clear opening at the front of the hangar. Door leaves and top guides were designed to resist a 20-psf wind load.

• **Roof design**—The roof consists of 2-in. thick tongue-and-groove sheathing, ½-in. insulation board and builtup roofing. It is supported at 8-ft intervals on 6x14-in. wood purlins (heavied to 8x14-in. where needed to support sprinkler mains). These members span 24 ft 9 in. between trusses.

In view of this construction, roof trusses were designed for a 19-psf dead load. In addition, they are capable of resisting a 30-psf live load plus a 15- to 20-psf wind load, including suction.

Subjected by the purlins to bending stresses, top chords were designed for a tensile stress of 2,990 psi and a compressive stress of 2,300 psi. Bottom chords were designed for 2,530 psi tension. These stresses include a 15% increase for the controlling combination of dead, live and wind loads.

All timber below the lower chords (such as columns and girts) was pressure treated with a fire-retardant. Additional fire protection is provided by a deluge-type sprinkler system. As a result, fire-insurance rates for this hangar are reported to be the same as for exposed structural steel construction when sprinklers are installed.

• **Trusses go up fast**—Truss members were precut in a shop and assembled at the site.

Front trusses were erected as single 250-ft long units, including framing for windows and siding. Weighing 30 tons apiece, each unit was lifted into place by two pneumatic-tired cranes.

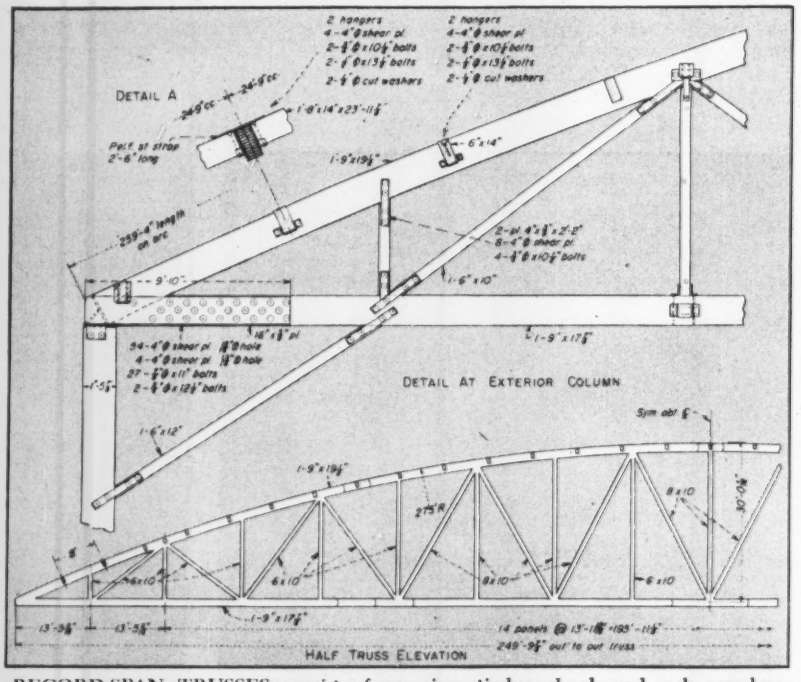
The other trusses were erected in pairs in lengths of about 60 ft, each pair tied by wind bracing and purlins.

These units weighed 15 tons apiece. Lifted into place by cranes, they were supported on temporary timber falsework until they could be spliced.

• **Costs**—The timber frame, including sheathing, steel tie-rod bracing, door pockets and partitions, is estimated to cost $3 per sq ft.

The building and its water-supply reservoir is being constructed for the County Airport Corp. at a cost of $2 million. Thompson-Starrett Co. is the general contractor, with Virgil Thurston as general superintendent.

The timber structural frame was fabricated and erected by Timber Structures, Inc., of New York City. The work was under the supervision of Elon E. Ellis, vice president, and Larry Winkelman, general superintendent. Julian K. Jastremsky was the architect, and Tuck & Eipel were the structural engineers.



RECORD-SPAN TRUSSES consist of one-piece timber chords and web members connected by steel plates and bolts.

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FULL-SCALE CONTOUR MAP—This is a California rice field that has been surveyed to establish levees, or checks, on contour lines. Water, having nearly-uniform 8-in. depth, is ready for seed.

Surveyors are the farmers in these rice fields

Special earthmover, towed by two tractors, erects levees in single pass to establish rice paddies

Thomas E. Riley
Registered Land Surveyor
Portland, Ore.

Rice raising in California today is an egineering feat—a remarkable example of large-scale mechanical farming where the surveyor as much as anyone is the farmer. The other "coolies" in these huge rice paddies are the pilots of busy airplanes and the operators of heavy earthmoving equipment. The fields are untouched by hand labor.

The Sacramento Valley rice lands, for instance, are huge—up to 1,000-acres per field. Instead of following the ancient orient method of successively flooding and draining small soggy paddies of soil, these large "rice ranches" use a continuous-submergence method of raising rice in huge quantities. They keep their enormous paddies covered with 6 to 8 in. of water throughout the growing season, thus curtailing the problems of weeds and the expense of pulling them by hand in the marshy land.

A cardinal rule is that the paddies be flat. Only accurately-leveled paddies will handle overall inundation with the water at exact levels. Being without low spots, such land also will drain rapidly so it can support the heavy threshing equipment that must move in quickly in the fall—before fall rains can arrive and spoil the crop.

• **High accuracy needed**—Because a single paddy in one of these large fields often will meander over a mile or two in its length, and because the paddy must vary only an inch in elevation overall, the surveyor-farmers are called on for both efficiency and high accuracy in their work.

• **Photos spot errors**—The magnitude of their leveling task is shown by the routine tests that are made each year. After the paddies are cultivated, surveyed and graded, they are flooded with 2 in. of water and then are aerially-photographed from about 10,000 ft altitude. The aerial photos of the telltale thin layer of water will show up in light and dark spots any low or high areas that require releveling. So experienced have these rice-land surveyors become that their fieldwork today seldom if ever fails the photo-test.

To produce such ticklish accuracy at a price within reason for farming budgets is a high compliment to anyone's surveying skill. Norman O. Glover, registered surveyor of Woodland, Calif., is one who is consistently engaged in this work, and the methods used by his two crews are a good example.

Mr. Glover seldom attempts to level an entire rice field to one elevation—because the earth-moving costs to the rancher usually would be prohibitive and the small levees or checks, as they are called, still would be needed to subdivide the field into smaller areas to prevent large wind-driven waves from harming the crop and breaking levees. Therefore, Glover follows a contouring procedure that has become standard in this rice-growing region.

• **Contours marked** — Glover's two crews use optical or coincidence-reading precise levels, to place and order control loops throughout and around the large fields, as needed. Then contour lines are located on the field, usually at 0.2-ft differences in elevation on flat land and 0.3 ft intervals on sloping land. The contours thus established are tied to the control loops.

The contouring is done in the cool part of the day when possible and with the same precision levels, which allow economical observations up to 1,500 ft distance. As the rodman moves across the field, directed along a contour line by the levelman, a tractor drawing a gang plow closely follows the rodman. The tractor plows in the contour line as it is located, actually marking out the contours on the ground.

The areas between the contours, paddies of 1 to 100 acres, then are leveled flat with special, 80-ft.-long land planes; or, if already fairly level,

by drags behind tractors. On new fields, any hummocks or hollows first are cross-sectioned and dozed close to grade so that the land planes can finish them readily.

• **Checking machine**—Along the contour lines, two large tractors draw a heavy "checking" machine, a large snowplow in reverse, to scoop up enough soil to form 4-foot-high checks or levees on the contours. The survey crew checks all this work and, thus, the fields become full-scale, highly accurate contour maps—with the contours or levees at 0.2 ft of 0.3 ft intervals and the land in between at a genuine flat.

Wooden gates are sandbagged into the levees, and the fields are flooded to a 2-inch water level in each paddy for the aerial photo test.

• **Planes take over**—Once full-flooded depth is established, the airplane cares for fields almost as you would your lawn. Planes do all the seeding, spreading rice seed in long, low sweeps over the water. As the rice plants emerge, the planes spray any weed-infected areas with 2-4-D, the same as you would spray it on your lawn at home.

Helicopters, too, are used to spray the corners of many fields, the most common spots for weed growth. On any paddy that needs fertilizing, the airplanes spread sulphate of ammonia in proper concentration.

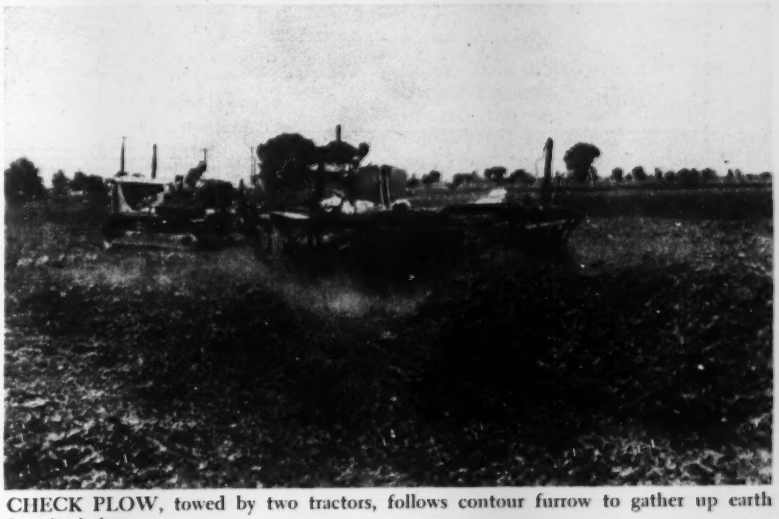
• **Keep ducks off**—They also have the unique job of herding wild ducks from the maturing rice until harvest time in October. Large flocks of ducks are continually settling in the fields in the fall, arriving from the nearby federal bird refuges on the Sacramento River. A patrolling plane immediately zooms past to frighten the birds back into the air and then herds the flock back to the refuges.

During the rice's growing season, from April to October of each year, the Sacramento Valley riceland surveyors are busy at such normal jobs as irrigation ditch improvement, farm surveys, other property line and construction work.

Each year, however, the cultivation of the rice fields is done overall—the checks are plowed under to remove accumulated weeds and all the paddies in one field are thus economically cultivated at once by large gang plows behind tractors, often by 3 or more tractors and plows operating as a team.

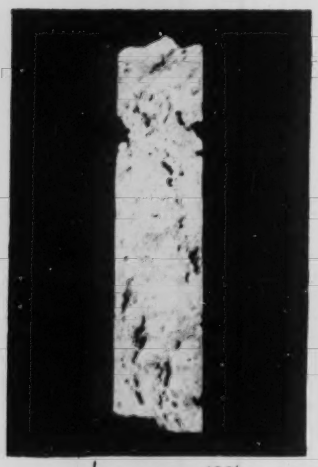
Therefore the contour checks and leveling are redone each year, making the surveyor, not the coolie, a familiar sight in these rice fields.

CHECK CONTOUR is sighted on ground by level crew as tractor and plow follow to make a furrow that will mark the location.



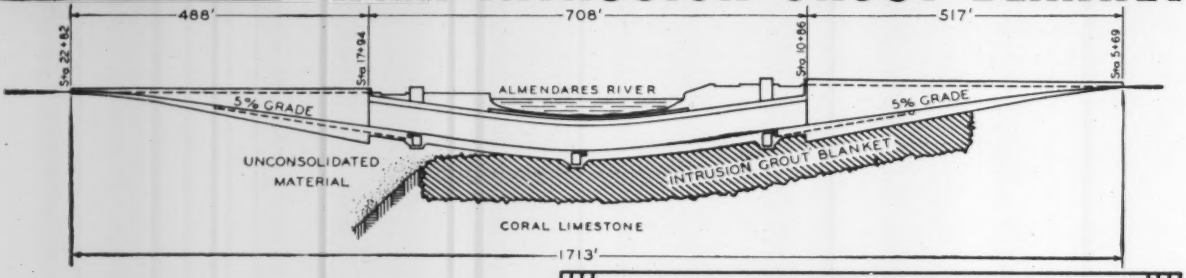
CHECK PLOW, towed by two tractors, follows contour furrow to gather up earth for check berm.

LAND LEVELER grades paddies to one-inch tolerance within each contour-marking furrow. Larger machines are 80 ft long.



Highly permeable coral limestone under new Havana tunnel presented costly problem of water control for open cofferdam — so...

PREPAKT SEALS POROUS FOUNDATION WITH INTRUSION GROUT BLANKET



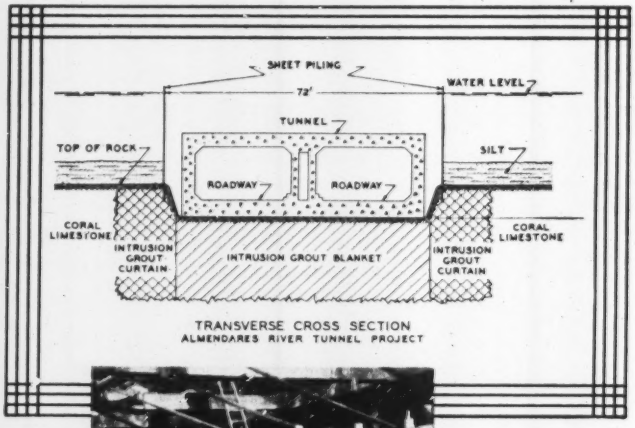
Prepakt's engineering and versatile materials produced a simplified, low-cost solution for water control during construction of the Almendares Vehicular Tunnel, Havana, Cuba. Normal pumping of the open cofferdam in this case would have been difficult and of prohibitive cost.

The porous coral limestone foundation for this twin-barrel, reinforced concrete tunnel was solidified by pumping with INTRUSION grout. This treatment resulted in a horizontal grout blanket 20 to 25 feet thick which effectively sealed the bedrock against water inflow. Some 166,000 sacks of INTRUSION cementing materials were pumped into an estimated 67,000 cubic yards of coral limestone.

The sheet pile cofferdam was then driven and after dewatering excavation was completed in open cut to 38 feet below river surface with no more than minor seepage. Excavation and subsequent operations were not hampered by water or pumping lines and equipment.

The extra strength and high penetrability of INTRUSION grout made this Intrusion-Prepakt project highly successful —saving time, trouble and money.

Drilling and grouting were performed under subcontract to Raymond Concrete Pile Co.



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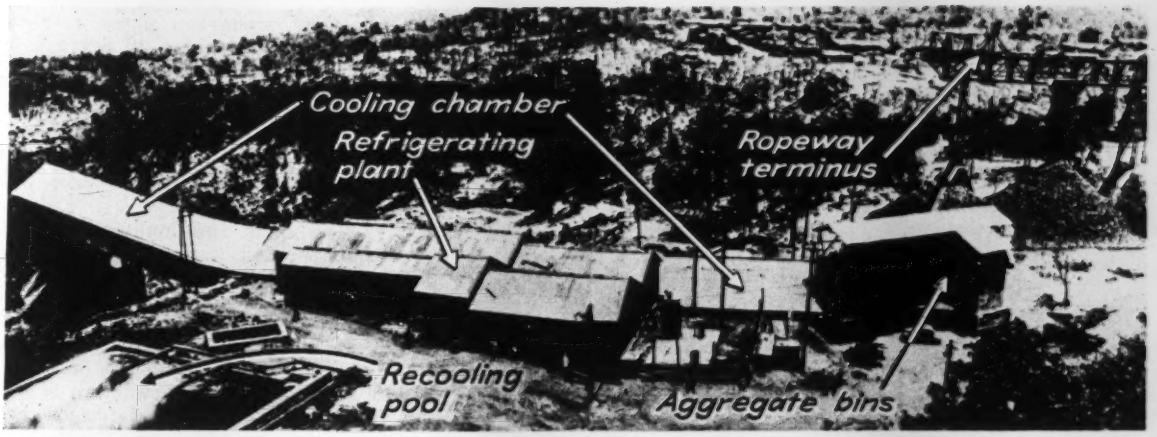

AGGREGATE COOLING PLANT at Vaitarna Dam. Sand and stone for concrete are cooled as they move slowly through a long chamber extending from the aggregate bins to the batching plant, which is at the far left below the end of the cooling chamber.

Aggregates cooled on belts for Vaitarna Dam in India

E. A. Bertsch
Volkart Brothers, Bombay, India
and
Americo Silvera
Chief Engineer, International Division, Carrier Corporation, Syracuse, N. Y.

To keep volume changes in Vaitarna Dam near Bombay, India, at the lowest possible point, aggregates for concrete going into that structure are being cooled as they move slowly on conveyors through a 300-ft long cooling chamber between loading bins and the batching plant.

As a result of this cooling, the average temperature of the coarse aggregates is reduced from 100 to 40 deg F, and fine-aggregate temperatures are cut from 100 to 72 deg.

No attempt is made to cool the cement, but since the temperature of the mixing water is cut from 85 to 37 deg by refrigeration, the average temperature of concrete as it comes from the mixers is at or below the specified 55 deg. A placing temperature of 60 deg or less is required. Actually temperatures as low as 58 deg have been maintained when the atmospheric temperature was 105.

Vaitarna Dam is being built by the Bombay Municipal Corporation to increase the water supply system of the city from the present inadequate 100 million imperial gallons per day to 220 mgd. It is a gravity-type structure of concrete, 1,820 ft long and 269 ft high, which will store about 46 billion gallons, to be collected chiefly during the monsoon season.

About 750,000 cu yd of concrete will be required for the structure, and the construction schedule calls for a concrete production rate of 120 cu yd per hour.

Both fine and coarse aggregates are produced at a rock quarry about three miles from the dam site. Six sizes of aggregate are processed there in a plant whose primary crusher has a capacity of 200 tons per hour. From the quarry a 15,000-ft long ropeway having a capacity of 160 tons per hour carries the aggregates to a stockpile at the dam.

This stockpile has one compartment for each of the six grades of aggregate, below which runs a 7x7 ft reclaiming tunnel containing a 30-in. belt conveyor of 200 tons per hour capacity. It in turn feeds six receiving bins placed at the head of the cooling chamber.

Each of these receiving bins discharges onto a separate conveyor extending through the cooling chamber between the bins and the batching plant. This chamber is a frame structure, 300 ft long, 33 ft wide and 10 ft high, insulated with 3 in. of cork. The last 100 ft of the chamber is an inclined bridge extending from the hillside where the main chamber is located to the top of the batching plant above the mixer, which is set at a lower level. Bins of the batching plant also are insulated.

The concrete plant contains three mixers of 2-cu yd capacity each.

• **Two types of cooling**—Cooling of the four coarser grades of aggregate is

Concrete Materials

Coarse aggregates	Pounds per hr.
6 in. to 3 in.	119,000
3 in. to 1½ in.	66,000
1½ in. to ¾ in.	66,000
¾ in. to ⅜ in.	57,200
Fine aggregates	
⅜ in. to ⅛ in.	57,200
⅛ in. to 100 mesh	109,400
Water	24,000
Cement	72,000

Temperature Reductions

	Cement	Sand	Stone	Water
Original temp.(deg F)	110	100	100	85
Mixing plant temp.	110	72	40	37
Temperature drop..	0	28	60	48
Amount, lb per hr.	72,000	166,600	309,400	24,000
Specific heat (av).	0.19	0.22	0.21	1.00
Cooling requirements, tons per hr	0	86	325	96

Cooling Requirements

Refrigeration	Tons per hour
Peak cooling load	507
Load from auxiliary equipment	43
Heat-gain through insulation	25
Total peak load	575
Total available peak capacity	615

COARSE AGGREGATES are cooled by flooding in chilled water in trough-type conveyors. Excess moisture is removed later by dropping the stone through an air blast.

FINE AGGREGATES are cooled in currents of cold air. Churning and spreading devices (left and right) aid this cooling operation.

done by a combination of refrigerated water sprays at 40 and 36 deg F and by flooding on trough type conveyors.

In order to remove free moisture from this material before it reaches the batching plant, the conveyors are taken over a loop, and the material—while falling to a steel grid—is air blasted at a high velocity. Any residual moisture is drained off during transport from the loop to the batching plant on the inclined bridge leading to the batching plant.

The two grades of fine aggregate are cooled on conveyor belts by cooled and dehumidified air at a temperature of 42 deg.

All aggregates are exposed to refrigerated water and to chilled air for 20 to 25 minutes, respectively.

A special device distributes the air evenly over the sand along the entire length of 330 ft without blowing away the very fines. To obtain thorough cooling of the bulk of the sand on the conveyor and not just the surface layer, the material is churned and spread. Since chilled air, clear of free moisture, cools the fine aggregate, it is delivered to the batching plant with no surface or free moisture.

By this method, all six aggregate materials are being precooled to various final desired temperatures.

Eight propeller-type fans of 27,500 cfm capacity each are required for recirculating the chilled air.

The basic cooling medium is refrigerated water made available at the rate of 1,600 gpm by two centrifugal-type machines of 300-ton refrigeration capacity each. Of this chilled water, 1,000 gal, at an initial temperature of 36 deg, is used in part in a large spray-type air-washer to cool and dehumidify the air required for cooling the sand to a temperature of 42 deg. The remainder is used for mixing concrete. The latter water is stored in an insulated tank on the weighing platform of the batching plant.

Water leaves the air-washer at a temperature of about 40 deg and is circulated over the first part of the four coarse-aggregate belts, doing the initial cooling. The remaining 600 gpm of chilled water (at 36 deg) is sprayed directly on the second portion of the coarse-aggregate belts, doing the final cooling.

The spray and inundation water from the four coarse-aggregate belts is collected in a trough underneath the belts, leading into a series of settling tanks, to remove any silt washed away from the coarse aggregates. The final settling tank has a fine mesh screen to prevent any possible return of silt into the system. Suitable arrangements for flushouts are provided on the settling tanks for easy and periodic removal of the silt collected.

Standard refrigeration units, pumps and fans are used, and the whole process can be regulated to meet changes in atmospheric conditions. The slow cooling insures that the coarse aggregates are cooled thoroughly, not just on the surface.

In this scheme of aggregate cooling, the cement itself is not cooled, since it would have required additional equipment that could not be economically justified.

Two refrigerating machines, with compressor, condenser and water cooler, all on one base, perform all of the cooling of the water required. The water temperature is automatically controlled, and consequently the final mix temperature itself can be varied, if desired. By using this method of cooling, the designers and contractors eliminated the need of employing ice in the mix which, of course, is not a reliable means of controlling mix temperature.

Placing of concrete was begun in May, 1952, and the dam is expected to be completed in 1954. It was designed by N. V. Modak, special engineer of the Bombay Municipal Corporation. The main contract is held by Hindustani Construction Co. of Bombay.

The cooling plant was designed, supplied and installed by Volkart Brothers, distributors in India for the Carrier Corporation, Syracuse, N. Y., in cooperation with the contractor.

Centrifugal pumps for circulating the cooling water were supplied by Sulzer Bros., Switzerland; and the electric motors and control by Brown Boveri & Co., Switzerland. Fans for air circulation were supplied by the General Electric Co.

The trough-type belt conveyors for the cooling chamber, which operate at abnormally low speeds, were specially designed for the job by J. Pohlig A.G., Cologne, West Germany.

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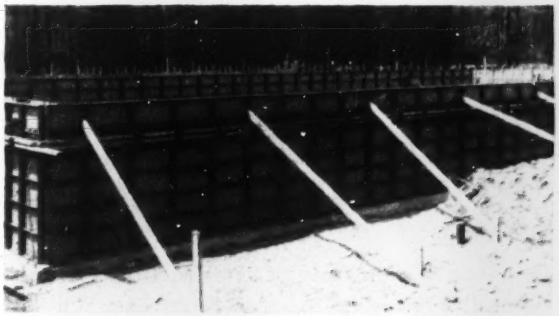

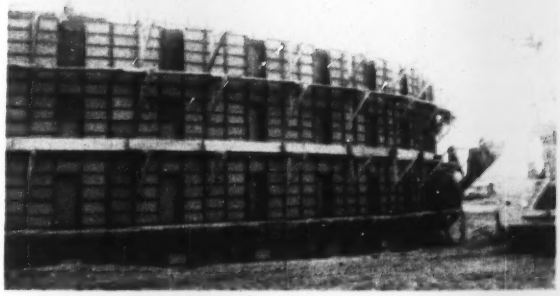

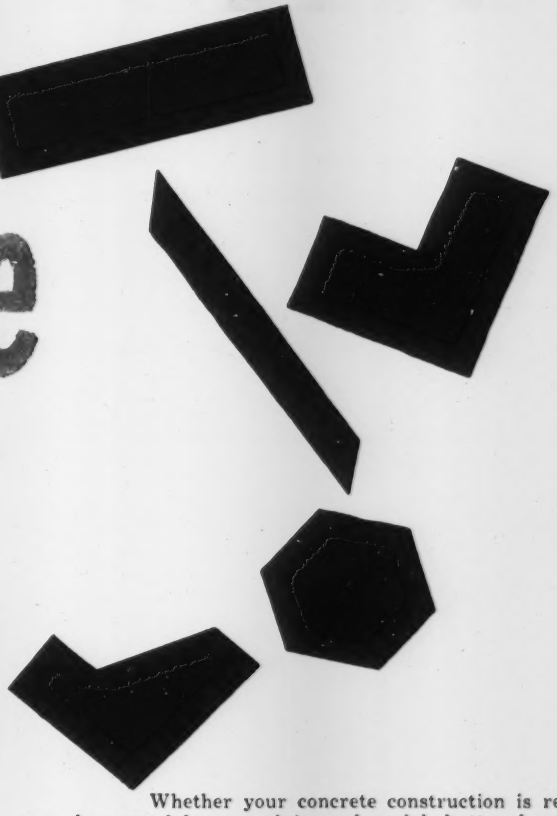

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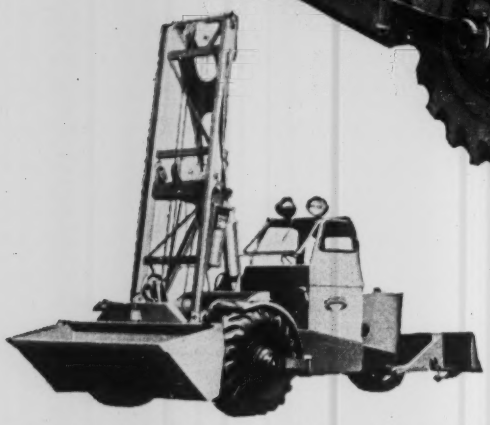

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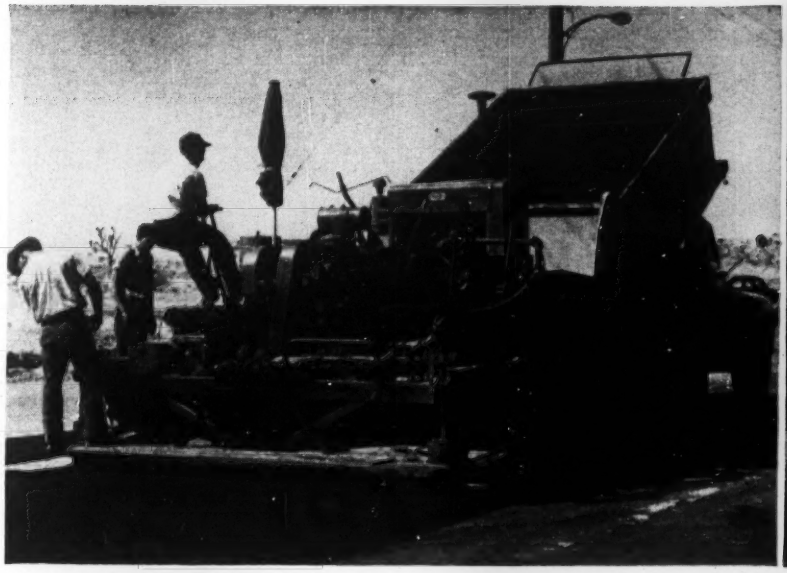


USAF and ENR staff photos

Asphalt and soil-cement team for high-type air base roads

A combination of asphaltic concrete on cement-stabilized base has been found most economical in building roads and streets for a West Coast air base. This was established by Corps of Engineers analyses and by alternate bids on three-fourths of a million square yards of paving at the Air Force Flight Test Center, Edwards Air Force Base, Calif.

The center has a primary mission of flight testing new aircraft developments and implementing the program of the Air Force's Air Research and Development Command. It is located in the Mojave Desert because of remoteness, terrain-features and isolation consistent with necessary safety and security precautions. And the extensive usable area (third largest USAF installation in the U. S.) incudes the rock-hard Rogers (Muroc) Dry Lake that provides 65 sq mi of landing space.

Looking to the future of flight testing, Edwards Air Force Base is being converted from a temporary World War II training base to a permanent installation (ENR Feb. 26, p. 23). In the process, buildings, runways and other facilities are being built for long-time use with minimum maintenance. For that reason, the system of roads and streets needed to be first-class construction comparable to commercial districts of a small city .

Local materials at Edwards are of a granular nature with decomposed granite predominating covered by loess and fine sand. There is very little clay and good aggregate deposits are not too plentiful.

Based on these local conditions, the design engineers' decision was that the road surface should be a 2½-in. thickness of hot-mixed, dense-graded, asphaltic concrete on a stabilized base. This would provide a high type pavement and yet in this instance be cheaper than a rigid surface.

Economics of a soil-cement base as compared with a stabilized aggregate base course were not clearly defined in design. Accordingly, alternate bids were taken for the base course on the first of two major contracts. The soil-cement base proved lower (24.3 cents per sq yd for soil-cement base as compared with 80 cents per sq yd for stabilized aggregate) so it was specified without alternate for the second major contract. In retrospect, it seems obvious to the engineers that a soil-cement base is cheaper due to the difficulty of developing good aggregate supplies for a stabilized aggregate base.

On the second contract, bid figure for the soil-cement base was even cheaper, being 17 cents per sq yd. The two contracts total ¾ million sq yd of paving, making this the largest soil-cement installation undertaken in this country.

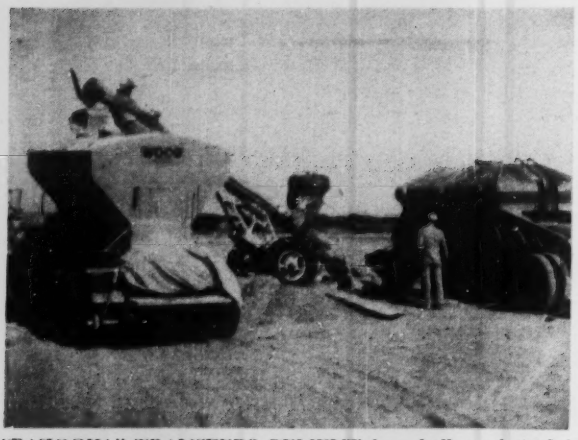
• **Base construction**—In constructing the cement-stabilized base, three factors are carefully controlled: Cement content, water content, and density. All are aimed at producing a dense, consolidated stabilized base.

At Edwards, cement content varies between 5.5 and 8% by volume depending on the soil. Where the natural material is naturally fine, a higher cement content is required. Where the material is poorly graded, more cement is also required. In both instances the additional cement is needed to cover and bind the soil particles.

On-the-job control of cement content is primarily dependent upon the machine used by the contractor to spread cement. At Edwards, a traveling distributor deposits cement on windrows. The spreading mechanism is geared to the rear axle of the distributor. Adjustments are available to guarantee a specified amount of cement per foot of travel of the machine. Control is achieved by measuring the windrows and an occasional check of the spreader.

Water content specified at Edwards varies from 8 to 11% by volume according to the particular material encountered. On this work water is added as the traveling mixing machine picks up windrowed material. Additional water is sprinkled over the subgrade as necessary during and after spreading and compaction. Control is provided by samples cut from the compacted subgrade and taken to a field laboratory for analysis. These samples are also analyzed to see if the material has been compacted to 95% of laboratory maximum density.

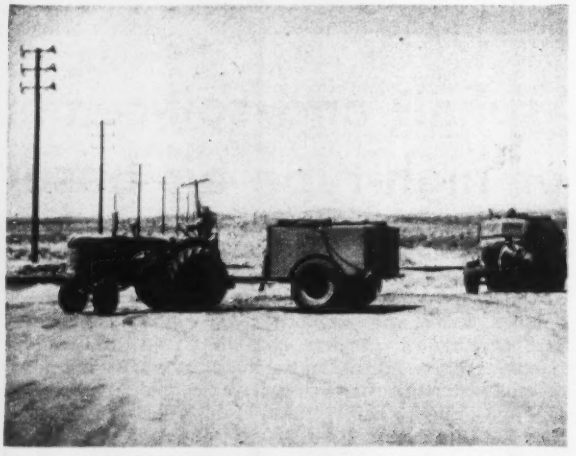
Because a soil-cement mixture is essentially a low grade concrete, it is necessary to spread and compact it as soon as it is mixed. At Edwards, motor graders closely follow the road-mix machine to spread the windrows.



"BAZOOKA" TRANSFERS CEMENT from bulk truck (right) to distributor truck (left). Relatively new on the Edwards work, the machine is a gas-engine-powered enclosed screw conveyor.

SOIL-CEMENT BASE stabilization at the Edwards base. Bulk truck (right) spreads cement while a roadmixer accompanied by a water tank truck processes an adjoining windrow.

SPREADING AND COMPACTING equipment closely follows the soil-cement mixing machine. Essentially a low-grade concrete, soil-cement must be processed promptly after mixing.



FINAL COMPACTING is by rubber-tired roller as tank truck waits to spread curing coat. Asphaltic emulsion serves as curing coat for the soil-cement and tack coat for the asphaltic concrete.

Both three-wheel rollers and rubber tired rollers are used for compaction. Additional water is sprinkled on from tank trucks as is necessary.

The curing coat is not applied until the laboratory analyses are made and the material found to meet requirements. This usually takes some 45 minutes.

The curing coat is an asphalt emulsion (AE 5) heated to 125 deg. F and spread at a rate of 0.18 gal per sq yd. This coat also serves as the tack coat for the asphaltic concrete to be later applied. This dual job is possible because the base is kept free of traffic until after the pavement is laid.

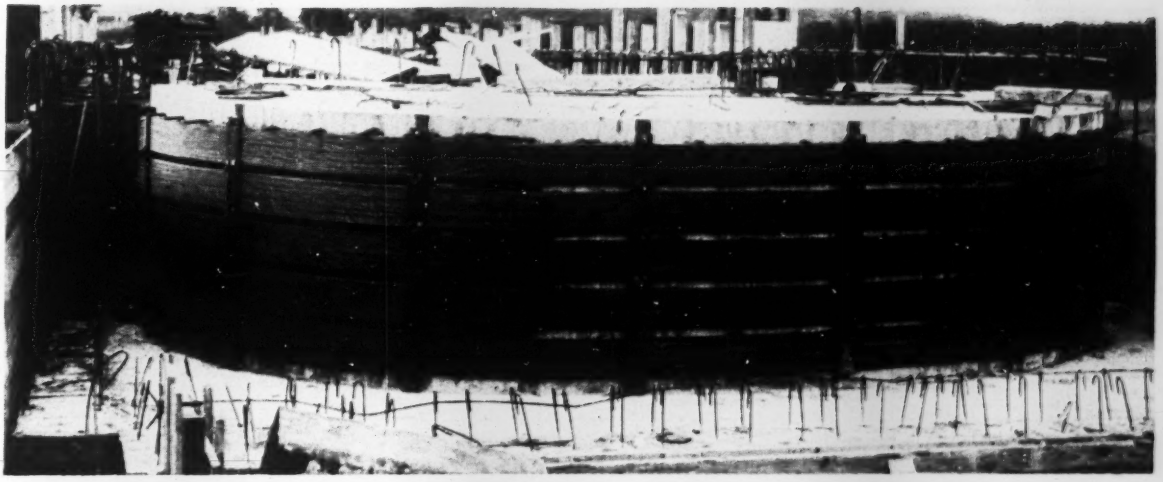
Equipment at Edwards for construction the soil-cement base includes a traveling pulverizer-type, non-elevating roadmixer that, as previously stated, picks up windrowed material, adds water, mixes the combination and deposits it in windrows. The only relatively new equipment item is a "bazooka" that transfers bulk cement from truck-trailer units to the cement distributor. Motive power is a four-cylinder gas engine driving a screw conveyor.

• **Pavement design** — The asphaltic-concrete design conforms to the requirements of standard federal specifications for hot plant-mix, dense-graded material. But, in this case three series of aggregate gradation are specified each of which has a different percentage of asphalt. The contractor makes his selection of one of these three series depending on the aggregate available to him. He must stick to this series for the remainder of the job. The range is further narrowed down by a job mix formula.

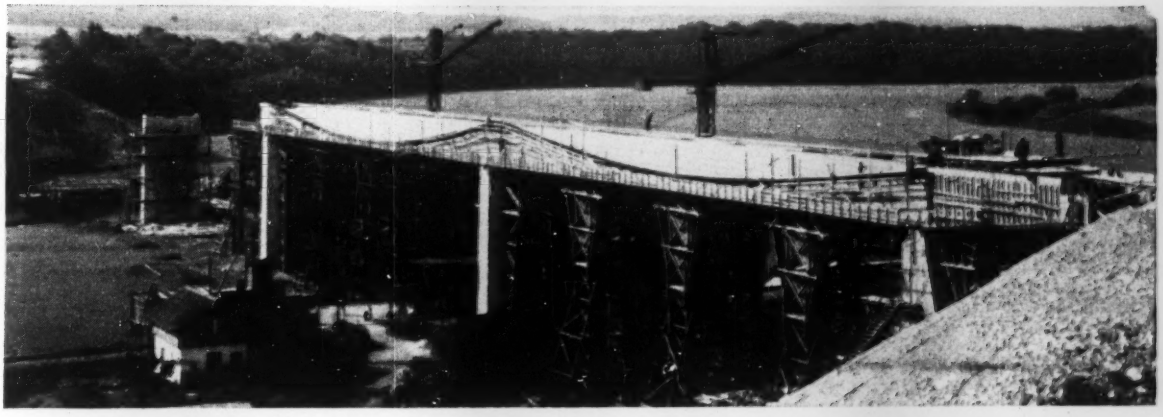
At the California base, the Marshall stability test for tire pressure of 100 psi and below must be less than 500 lb, the Marshall flow test must be 20 or lower, the percent voids must be between 3 and 5 and the percent voids filled with asphalt must be between 75 and 85. Specifications for the work include detailed provisions as to the component parts of the mixing plant and the procedure for its use.

Design and construction of the Edwards Air Force Base work is under the direction of the Los Angeles District, Corps of Engineers, Col. W. R. Shuler, District Engineer. Resident Engineer at Edwards is George Davis.

The roads and streets work is carried out under two contracts. The first is for $1,485,000 and is held by Fredrickson & Kasler and Lowe & Watson. The second contract for $837,-144 is held by Frederickson & Kasler and Peter Kiewit Sons Co. Clyde W. Wood, Inc., served as subcontractor for soil-cement on the first contract.



Wrap-around cables prestress . . .



long continuous-girder bridge

Fritz Leonhardt
Consulting Eng., Preload Engineers, Inc.
Stuttgart, Germany

Curzon Dobell
President, Preload Company, Inc.
New York, N. Y.

The Danube Valley Bridge in south Germany, near Ulm, will be one of the world's longest continuous-span prestressed-concrete bridges when completed in October.

Total length of the bridge will be 1,230 ft, made up of five of the longest continuous spans ever built of prestressed concrete. The three middle spans are each 230 ft long, the end spans 204 ft long. (The Juazeiro Bridge on the San Francisco River in Brazil is 2,600 ft long, with girders continuous over 12 piers, but spans are only about 150 ft.)

The Danube bridge is being built in two sections, each consisting of two T-shaped girders, the road deck forming the top flange. One section, continuous over two spans, was finished last fall. Due to the severe winters of southern Germany, the other, a three-span section, was started this spring and will be finished in late fall. In spite of this stoppage, continuity of girders is preserved by a unique system of lapping the cables of the two sections where they meet.

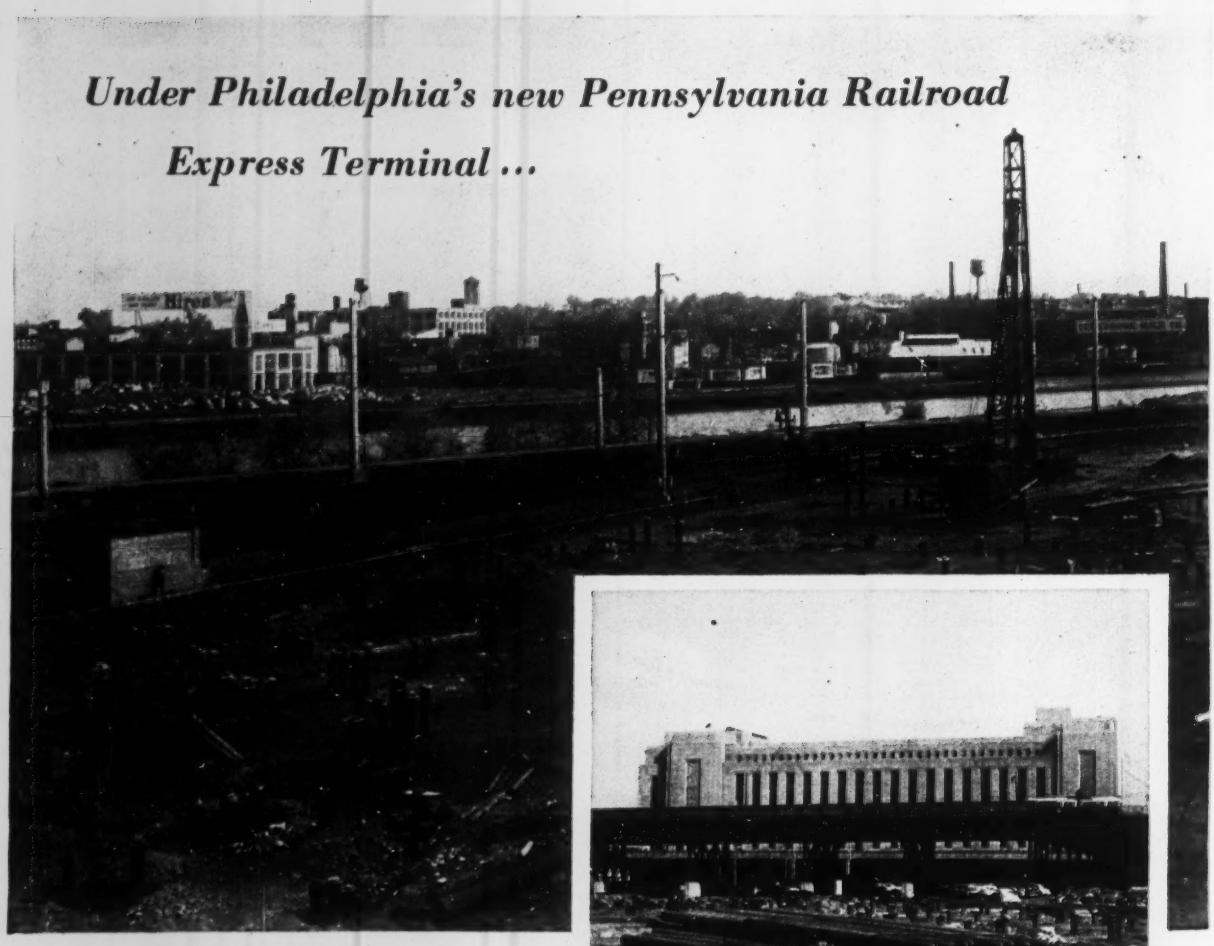
• **Unusual prestress**—Concrete was prestressed in the first section nearly a year ago. This fall, the completed second section will be prestressed, and all five spans of the bridge will be continuous. All prestressing cables in the girders and the road deck were tensioned after the concrete had set, bond being prevented—and established later with grout.

Cables, consisting of continuous steel strands inserted in casings in the girder webs, were wrapped around the ends of the girder in each section of the bridge. Prestressing the cable for the first two-span section of the bridge was done by jacking a semicircular stressing block at one end (around which the prestressing cables passed) away from the abutment, thereby tensioning the whole prestressing cable for this section in one operation.

Frictional resistance along the cable during prestressing presented a problem that could have prevented the use of continuous prestressed girders in this bridge. However, Leonhardt has developed an inexpensive solution by concentrating the prestressing elements for a whole span into two main cables and relieving frictional restraint in the cable by use of lubricated sliding plates located in the cable casing at critical pressure points where the cable changes direction.

• **A rectangular cable**—The cables are rectangular in section: each contains 372 strands and each strand is com-

Under Philadelphia's new Pennsylvania Railroad Express Terminal ...



Inset shows Monotubes field-spliced to required length, ready for fast, easy driving by Pile Driving Contractor Brann & Stuart Co., Philadelphia, Pa.

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Weigh these and other Monotube advantages. They pay off well on *all* types of jobs. For the latest information write to The Union Metal Manufacturing Co., Canton 5, Ohio, for a copy of Catalog No. 81.

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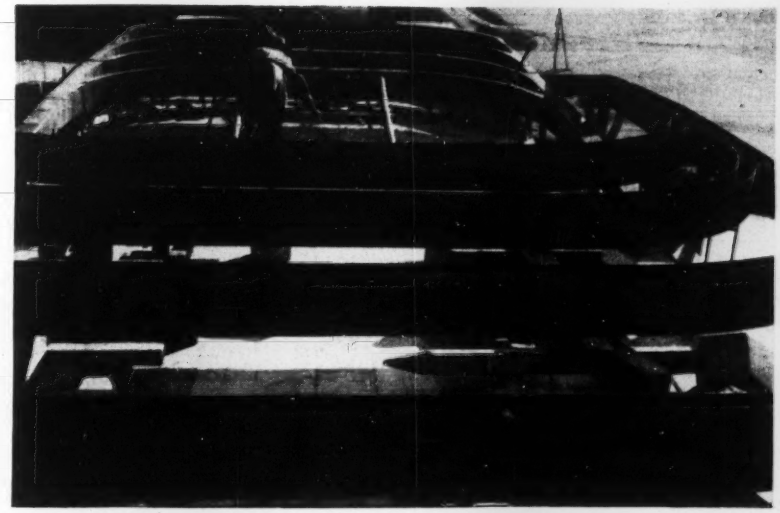
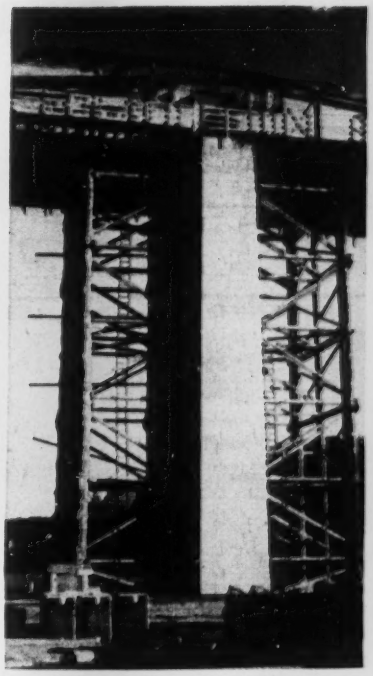


SHEET METAL CASINGS for prestressing cables overlap at the end of the second span, where they loop back to the abutments. The bridge was constructed in two sections which were made continuous over this pier. Enclosed casings in the background contain cables for the first section of the bridge. Open casing loops, in the foreground, are for the second section cables.



AT PIER 2, cable casings for second section of bridge (which will be concreted this fall) rise above those for first section of the continuous girders that were concreted last fall.

posed of seven ⅛-in. dia wires with a yield point of 256,000 psi. A rectangular sheet metal casing, 8 x 8¼ in., encloses each cable. The complete cable for the first two-span section of the bridge was spun around the girder in two days with the aid of a diesel-operated traveling dolly to carry the wire.

• **Slim, but rugged**—Crossing 75 ft above the valley floor, the Danube Valley Bridge consists of a 37-ft 6-in. wide road deck placed on two girders spaced 19 ft apart. The road deck cantilevers 8 ft 2½ in. beyond the girders.

With a uniform depth of 13 ft 6 in., the girders have a depth-span ratio of 1 to 18. They are shaped like a T with the road deck forming the top flange. At the piers, the girders are thickened 5½ in. to take the diagonal tension due to shear and compressive stresses due to bending. They rest on steel rockers at the piers.

Stiffening diaphragms of reinforced concrete are placed between the girders at quarter points in the span. These stiffening diaphragms are poured monolithically with the girders, but a small space is left between the diaphragm and the road deck above to avoid tensile stresses in the diaphragm that might be induced by the road deck under load.

The road deck, of reinforced concrete 7½-in. thick, is strengthened by 1-ft deep prestressed concrete ribs running transversely under it at intervals of 20 in. This extra strengthening was needed to meet German bridge specifications. These require that all highway bridges be designed to distribute the loads of tanks weighing up to 88 tons and trucks with short wheel bases weighing up to 60 tons.

The piers for the bridge are of reinforced concrete faced with stone. At the piers the bridge girders, along with haunched stiffening diaphragms placed between them at this point, rest on steel rockers on bearing plates.

• **Stressing operation**—Tensioning of the prestressing cables is done in one operation for each of the two sections of the bridge. In the first, or two-span section of the bridge, the prestressing cable loops around the full length of the two spans. At the abutment end of this section of the bridge, the cable passes around a semi-circular concrete block. This block stands on rollers and was poured independently of the first span.

Hydraulic jacks were placed in the space between the semi-circular block and the end of the first span. Within two days after concreting the two-span section an initial prestressing force was applied (equal to about 10% of the total force of 4400 tons) to minimize the development of shrinkage cracks. When the concrete reached the required strength for transfer of full prestressing force, the block was jacked away from the section, thereby tensioning the whole two-span loop of prestressing cable.

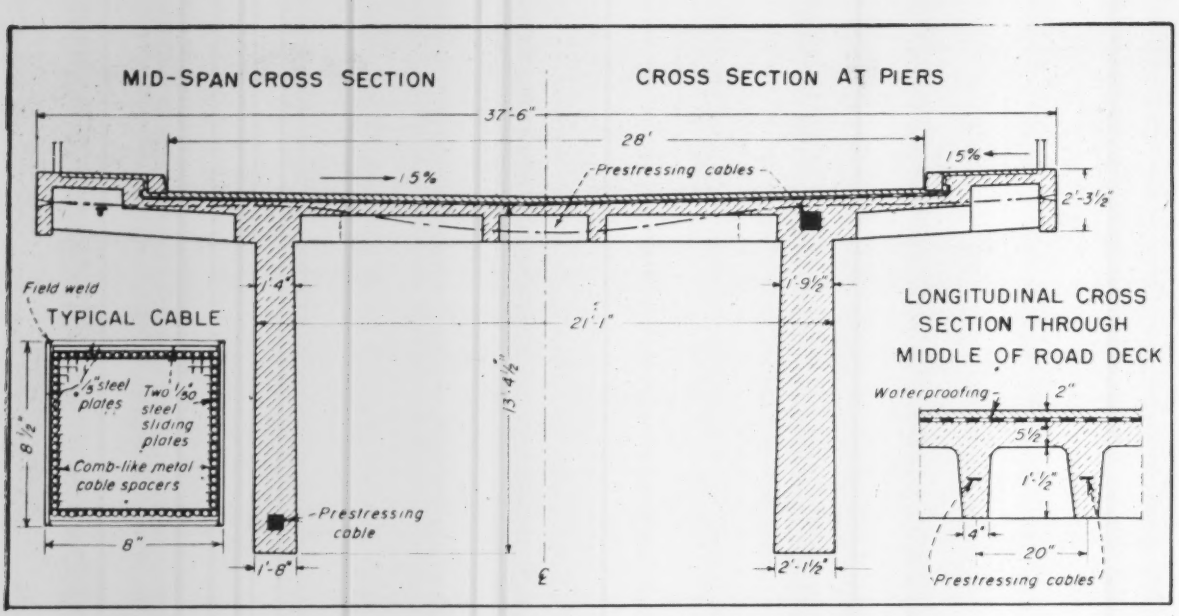
When the jacking operation had imparted the design strain in the prestressing cable, the space between the stressing block and the first span was concreted.

The same technique will be used to tension the prestressing cable loop for the three-span section of the bridge.

The method of wrapping a prestressing cable around a semi-circular block, and then jacking the block away from the structure to be stressed, is a technique of prestressing that has not yet been tried in the U. S. However, Leonhardt has used this method extensively in Germany in the past.

For other bridges such as the continuous five-span bridge at Neckargartach, Germany, the whole 748-ft structure was stressed in one operation at one abutment only. The same process was used on a three span, 356-ft bridge at Neubeuern, Germany, and in a five-span railway bridge in Germany. Dr. Leonhardt believes that the Danube Valley bridge also could have been stressed in one operation for its entire length—were it not for the winter work stoppage.

• **Friction in the cable**—The toughest obstacle in the design of the bridge was the problem of overcoming frictional resistance in the prestressing cable during the tensioning operation. From a point over the pier to the low point at midspan, the cable drapes through a 12-ft vertical reversed curve in each span. Losses in prestress due to friction could have made the tensioning of cables through these 12-ft differentials impracticable. But due to



GIRDERS are prestressed by cables enclosed in a rectangular steel sheath. Road deck is strengthened with transverse prestressed concrete ribs.

the unusual design of the cable casings frictional losses of only 15% were measured after the initial tensioning of the cable.

• **Plates and paraffin**—The casing is assembled as a series of straight sections connected by short curved sections. Since the cable changes direction at the curves, the critical frictional pressure points in the cable occur there during tensioning. To minimize this frictional pressure at the curves, sliding metal plates are placed between the cable and the casing at these pressure points, and they are separated from the casing by a layer of paraffin. Furthermore, the horizontal dimension of the casing at this pressure point is reduced to prevent any lateral displacement of the cable during prestressing. Sliding metal plates are also placed on the sides of the casing at the curve, between the cable and the casing, to prevent any frictional resistance in the cable due to lateral displacement of the cable during tensioning. A layer of paraffin is also applied between these side plates and the casing.

The strands of the cable are laid in horizontal layers in the rectangular metal casing. Each layer of strands is separated from its neighbor by a light-gauge metal comb-like spacer whose teeth, in turn, separate the strands in each layer. Direct contact is prevented between any of the strands in the cable. This process insures that when grout is pumped into the cable casing after tensioning, a good bond on every strand may be had.

After all strands are placed, the top of the casing is welded or crimped on, and the girder is concreted.

As the semi-circular stressing block is jacked away from the first span, in applying the prestressing force, the pressure of the strands (on the sliding metal plates in the curved sections of the cable casing) causes the paraffin between the plates and the casing to liquefy and act as a lubricant. At no time are the cable strands sliding on one another or on the metal casing. But the sliding plate moves with the cable and slides on the casing.

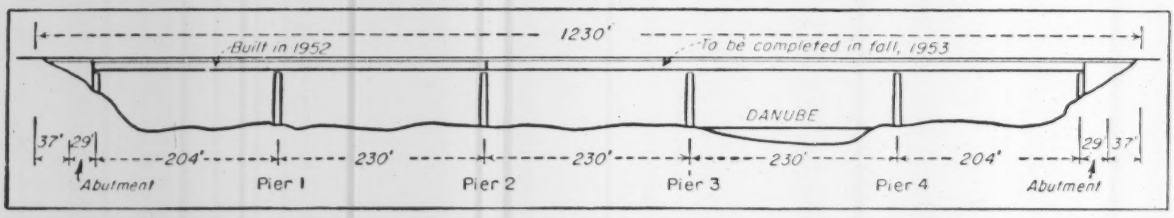
The comb-like spacers, the metal lining plates inside the cable casing, the horizontal arrangement of the cable strands in layers, and the liquid paraffin all aid in reducing friction.

After the design stress is induced in the cable, grout is pumped into the metal casing from the low point in the cable at mid-span to establish bond with the girder concrete. When the grout flows out at the ends of the girder, it assures that the strands are completely immersed.

• **Joining bridge sections**—Continuity between the two- and three-span sections of the bridge is made possible by a novel arrangement of cable loops. At the junction of the two- and three-span sections, the end loop of the cable of the first section passes under—in a 180 deg turn—the corresponding loop of the three-span sections.

At the ends of the spans to be joined, each cable is split into four subdivisions, each of which is enclosed in a separate metal casing. The four loops spread out in a horizontal plane to distribute the compressive load on the mass of concrete that is poured between the overlapping cables of the two bridge sections.

• **Continuity: winter notwithstanding**—Last fall, concrete was poured in the first section of the bridge to a



CONTINUOUS-GIRDER BRIDGE of prestressed concrete under construction in Germany will bridge Danube River valley, with five spans totaling 1,230 ft.

depth that embedded the end loop of this section's cable. The concrete did not cover the already placed end-loop casings for the three-span section. The first section was then prestressed.

When the cable for the three-span section is in place this fall, the road deck of the bridge will be poured to a total depth of 4 ft between cable loops to take the stress of the cables pulling in opposite directions. When the second set of loops is embedded, continuity between the two sections will be adequately established.

• **Road-deck prestressing**—The transverse ribs under the road deck were prestressed singly. Cables for the road-deck ribs are made of two layers of 12 wires, each wire being $\frac{7}{16}$ in. in diameter. Comb-spacers are used between the 12-wire layers of the cable to ease friction as much as possible, just as for the main girder cables.

The rib prestressing cables have a fixed anchor at one end, and at the stressing end the wires were anchored around a forged steel plug containing a threaded recess for a jacking bar. The plug rested in a conical opening in the concrete.

After placement and curing of the concrete, the jacking end of the rib is covered with a temporary steel plate containing a hole through which the jacking bar is screwed into the plug. The bar is then connected to a hydraulic jack which draws the plug back until the wires have achieved the required elongation. A nut on the bar is run down to bear against the plate and maintain elongation when the jack is disconnected. Grout is then pumped through the plate into the plug recess and along the entire length of the wires. When the grout has set, the plate and bar are removed for reuse and the hole left by the bar is concreted.

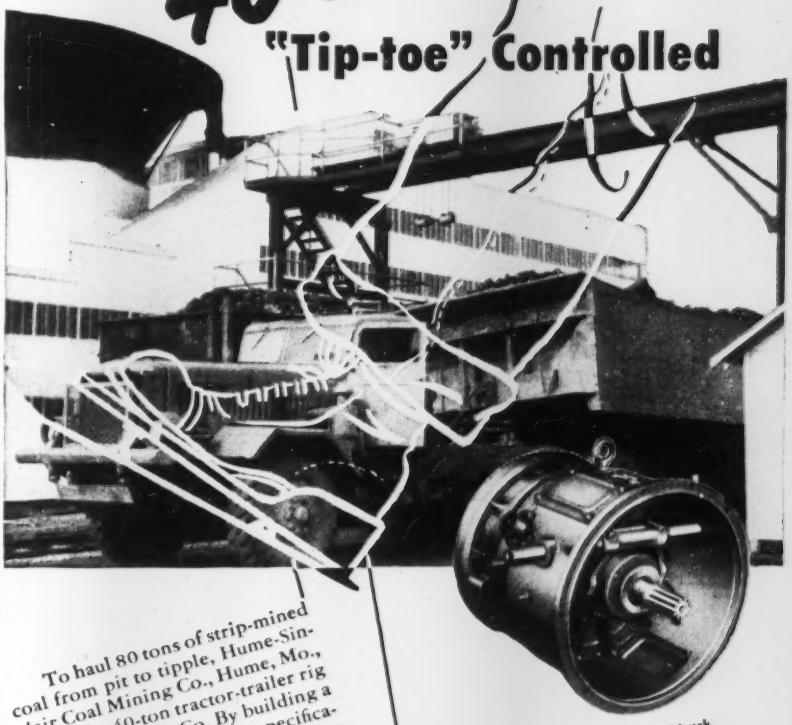
A concrete cube strength of 4,266 psi at 28 days was specified for most of the construction. However, a strength of 5,800 psi at 28 days was specified for the main girders, which are subjected to large negative moments over the piers.

This design calls for 0.084 cu yd of concrete, 6.81 lb of prestressing steel and 8.2 lb of mild reinforcing steel per square foot of roadway. (The U. S.'s first major prestressed concrete bridge, Walnut Lane in Philadelphia (ENR Sept. 21, 1950 p.32) had .130 cy yd of concrete, 16.4 lb of prestressing steel and 14.6 lb of mild reinforcing steel psf of roadway.)

Fritz Leonhardt designed the Danube Valley Bridge for the German Road Construction Authorities of the State of Baden-Wurttemberg. It was erected by the construction firm of Karl Kuebler, Stuttgart.

120 Tons UP... 40 Tons DOWN

"Tip-toe" Controlled



Hume-Sinclair's 120-ton GVW Dart truck, equipped with Model CF Converter. Twin Disc Truck Type Converters are available in 2 series, 7 capacities each, to handle the majority of heavy-duty truck engines available.

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GEORGE N. WALLACE . . . He plans parking for Cleveland merchants.

Shoulder off-street parking cost? Cleveland merchants happily pay up

City to acquire land for eight lots after shopkeepers urge program and agree to bear brunt of the cost

Neighborhood merchants in Cleveland, threatened—as are their counterparts in many cities—with financial loss as business flows to areas where there are ample parking facilities, are beginning an attempt to solve their problem, with aid from the city, through a unique and enterprising plan.

For merchant property-owners who want to help themselves and who request assistance from the city, the city of Cleveland proposes to build eight off-street parking lots at an aggregate cost of $3 million during the next six years.

• **Rejuvenation at no cost?**—While merchants are looking forward to a business revival, so, too, are city planners, who anticipate a cure for the blight that threatens these areas. Theoretically, the plan may cost the general taxpayers nothing in the long run.

Here's how the city will do it:

• Cleveland will acquire the property through negotiation or condemnation, clear it, and construct the parking lots.

• Merchant property owners who are directly benefited will pay two-thirds of the total cost in proportion to benefit derived. These assessments will be levied on the tax duplicate over a 10-year period.

• The city will assume one-third of the total cost.

Says George N. Wallace, Cleveland's chief city planner: "The parking improvement should increase property valuation, not only of the affected business area, but also of the surrounding community. We hope to get the one-third back through increased taxes." Revenue from meters in the lots, over and above cost of maintenance, also may go toward amortization.

• **Who pays and how much**—The assessments will be determined on the basis of usable frontage, usable depth and the proximity of the property to the improvement.

• **The storekeeper adjacent**—A tentative assessment plan, drawn for working purposes only during negotiations for the first lot (at E. 131st Street and Miles Avenue) shows that of 50 parcels to be assessed, the average cost is $6,000 per property lot. Cost to the merchant runs from a minimum of $1,000 to a maximum of $30,000.

• **And the one down the street**—Those in surrounding business sites also are going to pay. But, in general, benefited properties abutting the improvement will be assessed more than those farther distant. Cleveland will still own the lots.

Construction is expected to start on the first lot, a 400-car project, in the near future. It will cost roughly $500,000 for land and construction.

Original outlay for this unit and the seven others to follow will come from $3 million in bonds authorized by voters for off-street parking. Each will cost about the same, according to estimates.

Financing will be achieved through a staggered process dependent upon investment and assessment collections.

• **Background**—Lee C. Howley, former Cleveland city law director, recalls that several years ago merchants in several neighborhoods began to meet to discuss the problems of increased traffic and on-street parking. When they approached the city for help it was suggested that they buy land next to their property and convert it into parking facilities.

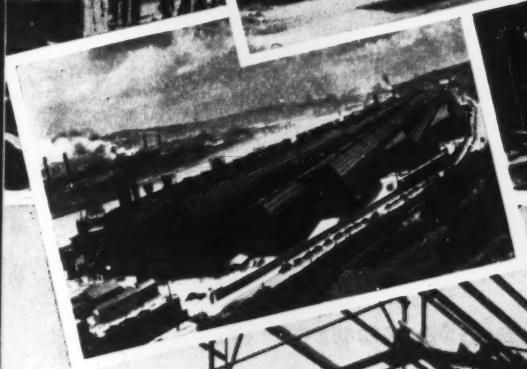
Unable alone to get going on the idea, they received a proposal from the city that it acquire the needed land under its power to make public improvements.

"Legally, it has developed into a process backed by state law," Howley said. On July 11, 1951, the Ohio Supreme Court held that cities can issue bonds to finance public parking facilities to relieve congested traffic conditions.

• **How to make it work**—Amicable negotiations aided in the active development of the plan by a group of businessmen with the co-operation of the law department, city planning commission and the assessments department.

Praise of the plan was voiced again recently, when the city's traffic control committee approved a resolution to appropriate $240,000 for acquisition of the first site.

To prevent the plan from getting snarled up in city council, Mr. Wallace outlined this remedy: "At all times we work with the merchant and ac-



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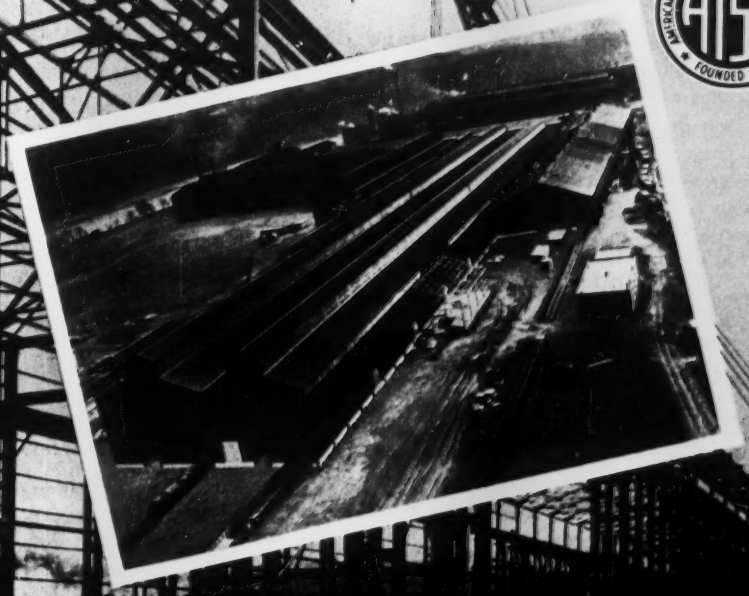

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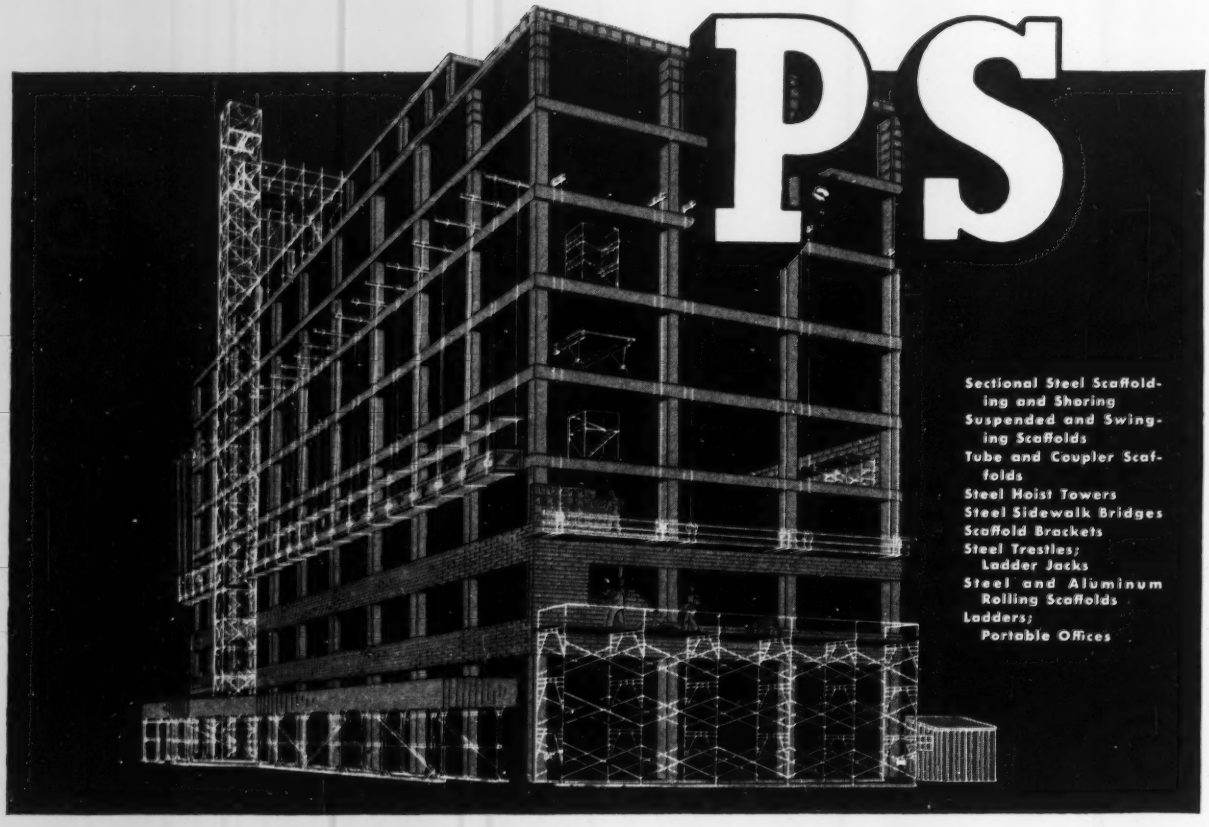

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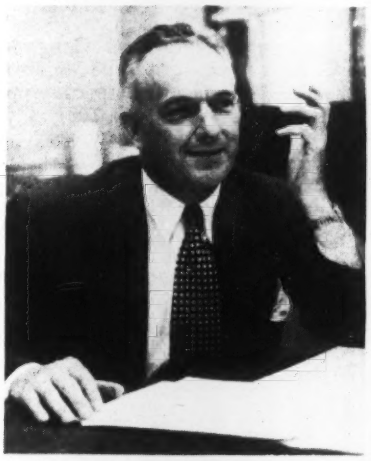

"THE WHOLE THING is cooperation."

quaint him with cost and design. He hears our ideas and we get his. So, when we go into council, we go in 100% agreement."

"The whole thing is based on cooperation. We don't try to sell anything. They want parking," Wallace adds.

Another problem, according to the planning chief, is the determination of payment for properties surrounding the lots. There's the case of a theater owner who, at his own expense, built a parking lot at E. 131 and Miles Ave. An adjustment, or recognition, will be made. The city will have to pay the assessment for a public school. A church will have to pay since it is not exempted from street improvement costs.

An anticipated problem is the expected demand by adjacent residents for conversion of their properties into business use, thereby creating zoning infringements. No rezoning will be done unless the parking lot can handle expansion.

The city will maintain and police the lots. Meters will be installed, not only to produce revenue, but for the discouragement of all-day parkers.

• **Assessment complicated**—The job of determining assessments on the first lot will be easier than on subsequent ones, according to Stanley P. Nemec, commissioner of assessments and licenses, because the structures there are almost 100% one-story only.

Actual assessments have not been worked out completely but a tentative plan was drawn about a year ago for working purposes.

"After the council passes its declaration of intention to make the improvement, the plan of assessment will be referred to the board of revision (law director, finance director and president of the council). They may approve or change it. After approval, the ordinance will be introduced," Nemec explained.

Southern planners meet, urge more urban planning

Under the stress of a rapidly expanding urban development, shifting population patterns and stepped-up industrial activity, 110 experts representing 14 southern states met in Roanoke, Va., to study and recommend action

Wide World photo

FACELIFTING—Brooklyn side of New York's East River is marked by nearly-complete $7-million reconstruction of roadways and approaches for historic Brooklyn Bridge (left). Manhattan Bridge (right) may be in for a $17-million reconstruction job to shift rapid-transit tracks from outside to center of roadway to balance loads that city engineers have found are twisting bridge steel.

ACID WASTE PROBLEMS?

One of the country's largest manufacturers of television picture tubes recently solved its acid waste neutralizing problem.

1 They consulted a competent engineering firm.

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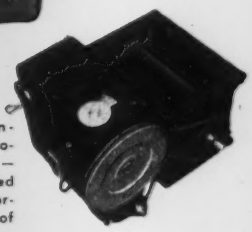
Builders Pneumatic Flow Meter paces chemical feeder for accurate, economical utilization of neutralizing chemical.



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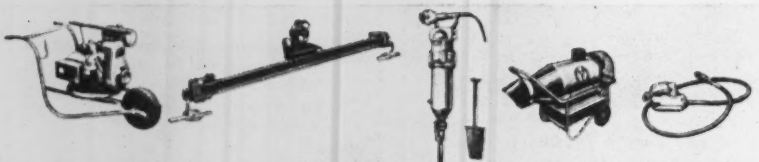

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to be taken in the resulting region-wide development problems.

The Southern Regional Congress on City Planning met in the Virginia city Aug. 17-19 under the sponsorship of the Regional Committee on City Planning, comprised of representatives of Georgia Institute of Technology, universities of North Carolina and Oklahoma, and the members of the Southern Regional Education Board.

• **Few planning agencies**—According to planners' reports, the South has 1,300 cities and towns with a population of more than 2,500, and 90% of these had less than 25,000 inhabitants. It was found that only about 200 of those noted had active planning programs. It was urged that all southern states initiate programs of local planning assistance for the smaller towns that might be unable to finance a full-time planning staff.

It also was recommended that a clearing-house be established to circulate information on basic research needs in southern planning.

• **Disinterest**—Lack of understanding and public apathy were held as the chief stumbling blocks to the progress of city planning, and development of working relationships between school and planning programs was urged.

Also cited was the inadequacy of planning legislation in most southern states and the need for a model planning enabling act for municipalities to serve as a guide for new legislation.

• **Additional recommendations**—Recommendations also were made for broader citizen participation in planning decisions, the establishment of short-course training and on-the-job training for planning, promotion in the universities of the planning field as a career, and the establishment of a trust fund for fellowships in city planning for graduate students.

Port of New York Authority to rush fourth Hudson tube

An origin-and-destination count of New York-New Jersey traffic using its six toll facilities will round out a year's study of the need for a fourth Hudson River tunnel crossing, it was announced by the Port of New York Authority recently.

Originally slated for a construction start after the 1957 completion of the third tube of the Lincoln Tunnel, now under construction, the new vehicular tunnel will be pushed ahead to answer pressure from New Jersey

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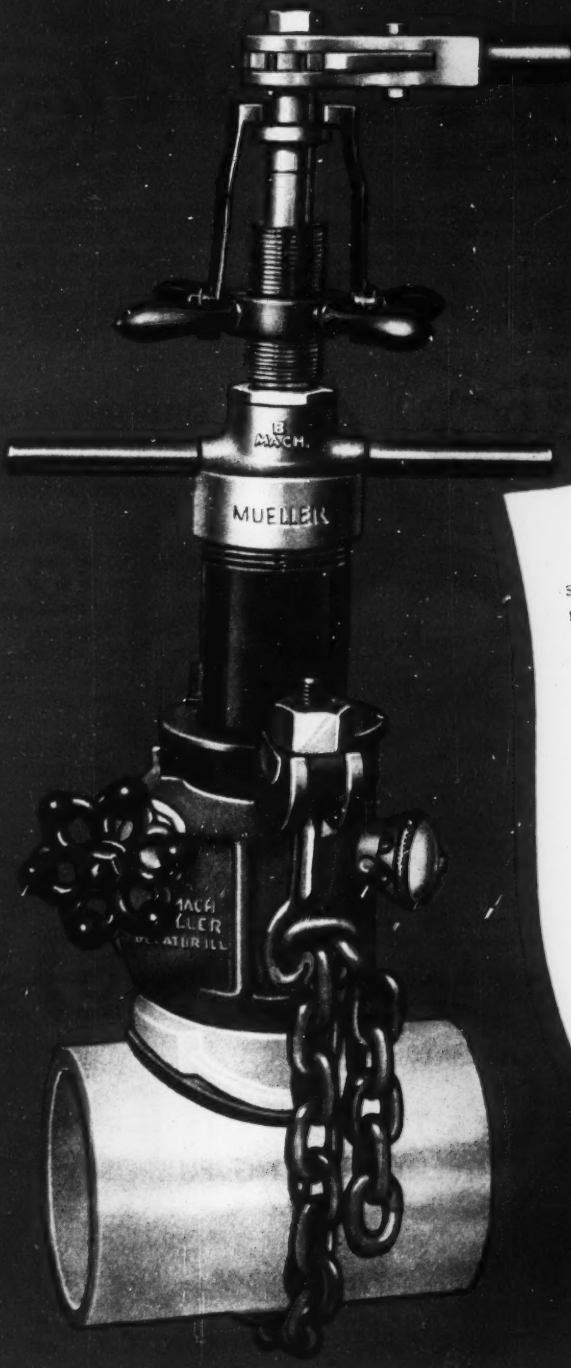

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communities which protest that present traffic load is clogging local travel lanes.

Indications of the need for early construction of additional facilities were cited by authority spokesmen in their illustrative statement on the tremendous surge of interstate traffic during the last two decades:

- Lincoln Tunnel, opened 1938, had a record of 1,790,000 vehicles in first year, but there were 19,577,000 in 1952;
- Holland Tunnel, opened 1928, provided crossing for 8,744,000 vehicles in its first year, and for 18,782,000 in 1952;
- George Washington Bridge, opened 1932, carried 5,509,000 the first year, and 27,979,000 in 1952.

The location for the new crossing has been planned tentatively to link Hoboken, N. J., with W. 14th St., N. Y. C.

Built-in parking

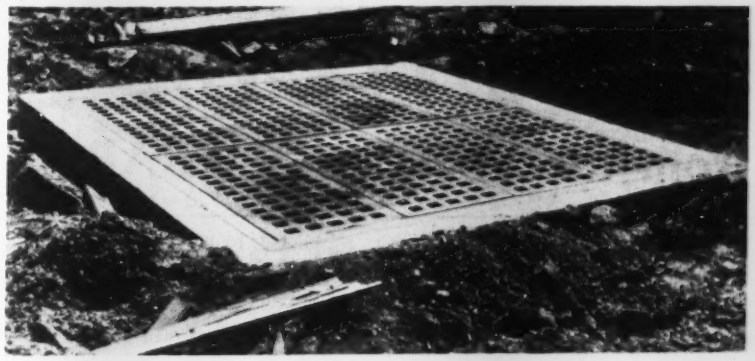
A must in new buildings under Chicago ordinance

A sweeping ordinance, requiring adequate off-street parking space in the construction of virtually all new buildings, was adopted by the Chicago City Council on Aug. 18. The new law also specifies that new buildings shall have off-street loading and unloading facilities.

- **Alteration provision**—Existing buildings or structures in the downtown area are excluded from the ordinance for as long as they remain unaltered, but for any alteration or enlargement in excess of 15% of the number of dwelling units, gross floor area, seating capacity, number of employees or other unit of measure specified by the ordinance, parking or loading spaces shall be provided on the basis of the total units of measure in the case of a new use of the property, or of the altered or expanded portion in the case of continuing use.

Experts contend that the traffic problem in the Loop section of the city can be helped best by the construction of public garages and parking lots. The city has purchased several sites and plans to buy others for public parking facilities.

- **Requirements specified**—Requirements of the new ordinance, as applying to several major types of buildings, are:
- One and two-family residences—one



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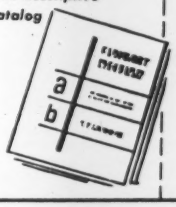

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Of even greater importance to you is the solid surety of matchless quality you get, when you insist on Yeomans Pumps.

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- the Menhaden boat "Tar Heel" of Port Arthur, Texas, loaded 10,000 fish from net to boat in just one minute!
- when a Maine-coast catch of herring threatened to smother the fish and destroy nets, the Yeomans-equipped "Sea Fox" was summoned by radio-phone—and saved both catch and nets.
- A Yeomans Fish Pump on the cannery dock of Canadian Fishing Co., Ltd., Vancouver, B. C., averages 180 tons per hour, has handled 10 tons a minute.

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This claim of objectivity is, to be sure, common to practically all equipment manufacturers; but here it has added significance because Yeomans builds both centrifugals and pneumatics.

In all other respects a Yeomans recommendation is enthusiastically biased—because we are utterly convinced that Yeomans Pumps—either centrifugals or pneumatics are the best pumps built.

The Yeomans Guard, published several times a year, is a compendium of news and useful information covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

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parking space for each dwelling unit.

- Apartment buildings—one space for each of 75% of the units.
- Manufacturing and industrial uses—one space for each four employees, plus such additional space as shall be required for all vehicles used in the conduct of the enterprise.
- Motor freight terminals and local cartage companies—one space for each four employees, plus one space for each vehicle used in the conduct of such operations.
- Hotels and clubs—one space for each six guest rooms or suites; additional spaces on account of bars, dining rooms and ballrooms.
- Hospitals—one space for each three beds.
- Retail stores—one space for each 300 square feet of sales floor area in excess of 2,000 sq. ft.
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- Convention halls, sports arenas, and gymnasiums (other than incidental to a school)—spaces equal in number to 10% of their capacity for persons.
- The law provides that new industrial buildings shall have one off-street loading and unloading space if the plant contains from 2,000 to 40,000 sq ft, of area, and two such spaces if the plant has between 40,000 and 100,000 sq ft, plus one additional space for each additional 100,000 sq ft of floor space or fraction thereof.

- **Few exceptions**—Off-street loading and unloading facilities are required for new apartment buildings, hotels and clubs, fraternities, sororities, hospitals, convention halls, sports arenas; also for exhibition halls, theatres, business and public administration buildings, and retail stores.

Tulsa donates test street—says "paint up or shut up"

Faced with the task of choosing a traffic paint for street marking, Norman C. Barnett, city traffic engineer of Tulsa, Okla., has set aside a portion of one of the city's most traveled streets for intensive tests.

He has invited all interested manufacturers of paints to join in the test to "determine the durability, appearance, workability and cost of the paint Tulsa buys for its street markings."

A strip of paint from each competing firm will be laid across the road at four-ft intervals, and experienced observers will check the number of vehicles crossing the area at various speeds to determine the best product.

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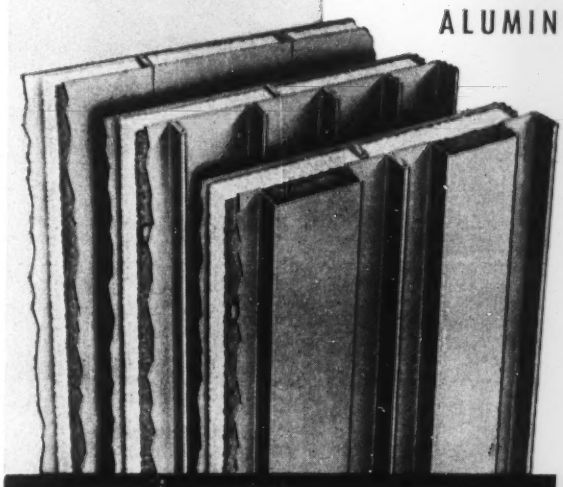

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Insulated Metal Walls have not only gained universal acceptance from a practical and economical standpoint, but are today recognized by architects as a component which, when combined with masonry or other materials, opens new potentialities in exterior design effects. The building below, which is a combination of Mahon Aluminum Insulated Wall Panels and brick, is an outstanding example of the architectural effects obtainable. Insulated Metal Walls offer definite advantages in lower cost of both materials and labor, reduction in construction time through rapid erection—plus the fact that these walls can be erected in sub-zero weather. Mahon Insulated Metal Walls are available in the three exterior patterns shown at left. The Mahon "Field Constructed" Fluted or Ribbed Wall can be erected up to sixty feet in height without a horizontal joint—a feature of Mahon walls which is particularly desirable in powerhouses or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for information, or write for Catalog No. B-54-B.

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AMERICAN BRIDGE uses unique method in replacing 61-year old structure on Illinois Central's busy main line

ONE of the most interesting modernization jobs in recent years is the new superstructure for Illinois Central's busy main line bridge over the Ohio River at Cairo, Illinois.

To accommodate today's heavier, faster traffic, this important railroad replaced its 61-year old nine-span structure with 12 modern spans.

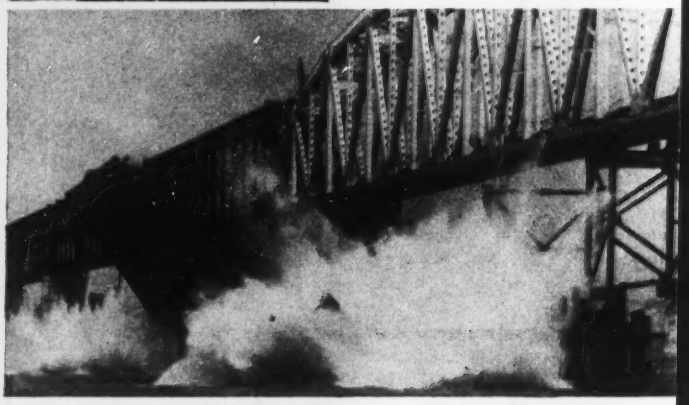
American Bridge, because of its skill, know-how and wide experience, was the logical choice to perform the major construction feat of building the new superstructure on the original piers with a minimum interruption in traffic.

The first old span of the bridge was rolled off its piers onto temporary falsework and the new 518-foot, 1,700-ton span moved into position and opened to service after a traffic interruption of only 20 hours. The old span was launched like a ship into the river 100 feet below for easy removal. The same procedure was followed span by span until the entire bridge was completed.

While this is the first time this method has been used on a job of such magnitude, it is a typical example of the part American Bridge is constantly playing to help our vital railroad systems meet the needs of growing America.

INTERESTING FACTS

- 6 deck-truss spans, 197' 7"
- 4 thru-truss spans, 400' 11½"
- 2 thru-truss spans, 518' 11"
- Bridge is single track.
- Steel used, 10,000 tons.
- Erecting procedure: Illinois Central R. R. and American Bridge
- Consulting Engineers: Modjeski and Masters.



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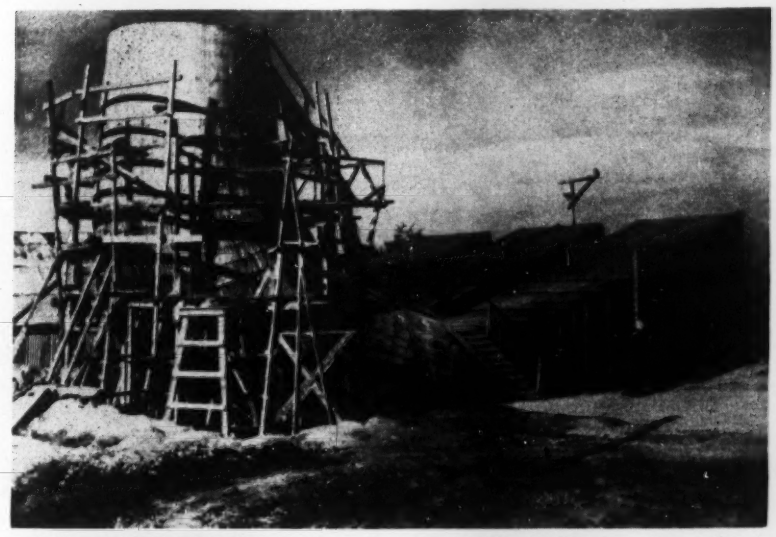

FORM FOR DRAFT-TUBE for Nangal powerhouse No. 1, The powerhouse, first in the Bhakra-Nangal project, is to be completed in autumn of 1954.

India's largest hydro project reset to start work on major storage dam

Indian officials have agreed to start work soon on the Bhakra powerhouse and to do it simultaneously with the excavation for Bhakra Dam. The Bhakra-Nangal is India's largest hydro power and irrigation project (ENR March 27, 1952, p. 80). The original construction schedule called only for completion of the relatively low Nangal Dam with its diversion channel. The channel will have three subsidiary dams and powerhouses. All this work was to be done before construction on the 680-ft high Bhakra Dam was started. After the completion of Bhakra Dam a powerhouse at its foot was to be built in the 1970's.

The decision to begin work on the Bhakra powerhouse now and do it along with the excavation of the dam itself, is based on considerations advanced by U. S. engineers working on the project. In the first place, the engineers pointed out, reliability of Bhakra-Nangal power could be insured only by construction of Bhakra Dam.

They said that breaks in the Nangal channel may occur despite every precaution, since parts of it are built well above natural ground level. Should a break occur, the three powerhouses along the channel would be out of service, and the whole Bhakra-Nangal project could supply no power until the break was repaired.

In the second place, they said, when the Nangal channel needs to be drained for inspection of structures, lining and embankments, Bhakra Dam will be able to supply power.

The third, but not the least consideration involved, is that blasting for the Bhakra powerhouse should be carried out with the excavation of the dam itself. As blue-printed the powerhouse is very near the toe of the dam, and when the dam is up and the reservoir full, blasting for the powerhouse could prove disastrous.

Eventually, there are to be two powerhouses at Bhakra Dam. The one at the toe of the dam is on the left bank of the river and will have 6 units of 90,000 kw each. In the future, when the demand warrants it, a second powerhouse will be built underground on the right bank of the river. The plan for this underground plant tentatively calls for 8 units of 90,000 kw each.

Canada plans first step in Yukon-aluminum program

A 25,000-hp power plant and accompanying smelter on the Taku River is likely to be the first stage of the big Yukon River power and metallurgical development (ENR March 12, 1953, p. 17), according to officials of Quebec Metallurgical Industries, Ltd.

The proposed plant is being planned as an economic operation in itself, independent of the general Yukon scheme which QML is developing for its parent companies, Frobisher Limited and Ventures Limited. This main plan calls for the eventual utilization of 5,000,000 hp in the Yukon Basin.

The Taku River is one of the two possible sites of the whole development which involves damming the Yukon—now flowing northwesterly into the Arctic Ocean over a high plateau—and creating a large reservoir to divert the waters down the steep slopes of the plateau into the Pacific. The other site under active consideration for the overall operation is the Alsek River further north.

The small plant now planned for the Taku River will use the natural flow of water from the Inskip River, a tributary of the Taku. It would neither interfere with the main plant, nor be put out of operation if it were decided to put the big power plant and main smelter on the Taku. The main plant would be run with water diverted down the Taku or Alsek from the dammed up Yukon.

Road system proposed to link Middle East

A scheme to link the capitals of the northern Arab countries from the Mediterranean to the Persian Gulf is being sponsored by the Rockefeller Institute. The cost of the highway network will be $100 million—$60 million to be paid by the institute.

The establishment of a high-speed overland link connecting the three Mediterranean ports of Latakia (Syria), Beirut (Lebanon), and Tripoli (Libya) with the three Persian Gulf ports of Basra, Kuweit, and Damman would give overall advantages to the Levant and the Arabian peninsula.

The proposed highway takes into full account the required movement of heavy traffic to the oil producing area of Iraq, Kuweit, Saudi Arabia Bahrein, and the Qatar Peninsula. Through the Latakia-Aleppo-Deirez Zour-Baghdad route, the oil producing areas from Mosul to Basra could be supplied from the west directly through the ports of Latakia, Beirut, or Tripoli. In the event of anything happening to the Suez Canal which might stop shipping through it, the proposed highway would be extremely important for contact with the west.

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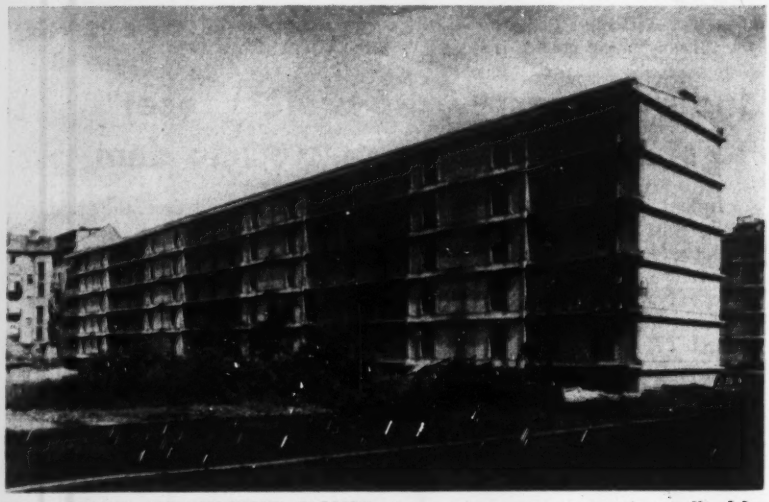
STRASBOURG HOUSING DEVELOPMENT is composed of 11 buildings, the highest of which is 13 stories. The group provides a total of 806 apartments.



FIVE-STORY APARTMENT HOUSE incorporates precast exterior wall slabs, spandrels and balcony slabs, cornices, and window openings.

Prefab elements used extensively in French housing project

A $5½-million apartment house project in Strasbourg, France, recently has been completed with an unusual array of precast elements. Three of the eleven buildings in the 806-apartment development are 6 to 13-story structures framed in reinforced concrete. These three buildings have elevators. The other eight buildings are wall-bearing structures of four floors and less. All the buildings are radiant heated.

Exterior wall slabs for all the dwellings were precast of cellular concrete in a plant built on the site. These wall slabs were all erected by crane, and a hollow tile was laid up with an air space against the inner side of the slab to form the full thickness of the wall.

Other precast concrete elements in the buildings include: stairs, kitchen and stair-well windows, door lintels and jambs, exterior spandrels at floor levels, and cornices and eaves.

The floors of the buildings are made of reinforced concrete planks precast at the foot of each building. These 6-in. thick floor planks were placed by

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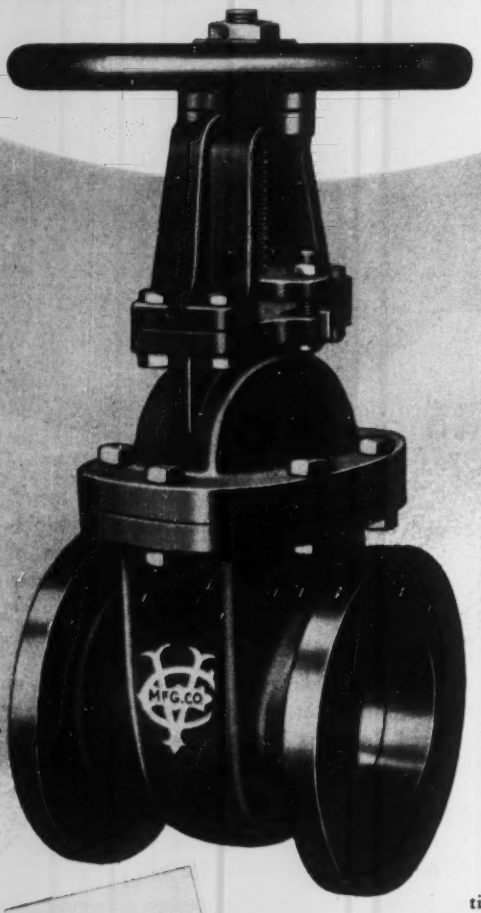

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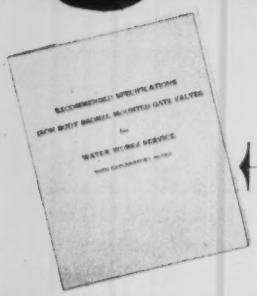

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crane. Radiant heat pipes were placed on the concrete plank and covered with a 2-in. coat of finish cement. Composition flooring forms the finished floor surface.

Roofs of the buildings are made of sheet aluminum and are supported by prefabricated wooden trusses.

The design of the project was standardized sufficiently so that forms for the structural framework and parts of foundations could be re-used until the end of the job.

Architect for the development was Eugene Beaudouin of Paris. The Societe des Entreprises Boussirons of Paris were the contractors, and they worked under the supervision of the French Ministry of Reconstruction and Urbanism. Bids were asked in December of 1950, and after the precasting plant had been set up actual construction began in October, 1951. The project was completed, except for finishing, in March of this year.

International briefs . . .

• **Indian pipeline**—Merritt-Chapman & Scott of New York has been awarded a $2-million contract by the Bombay Port Trust for building a pipeline system connecting the Stanvac and Burmah-Shell refineries, now under construction near Bombay, with an offshore marine terminal. The project involves construction of more than 15 miles of pipe for a seven-line network.

• **El Salvador seaport**—Engineering studies are almost completed on proposed seaport facilities that the government of El Salvador is planning to install at the Pacific coast port of Acajutla. The projected port facilities are expected to cost in the neighborhood of $18 million when completed. They will include the installation of breakwaters and docking facilities that will accommodate four ocean-going freighters at a time.

The new installation is an effort to increase docking facilities on El Salvador's Pacific coast in order to free the republic of partial dependency on Guatemala's Caribbean port of Puerto Barrios.

• **Puerto Rican refinery**—Plans for the construction of Puerto Rico's first oil refinery have been completed by Caribbean Refining Co. Total cost, $10-million; capacity, 10,000 barrels daily. The plant, to be built by Fluor Corp., Ltd., of Los Angeles, is scheduled to be in operation by January, 1955, under licenses from Universal Oil Products Co.

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As in past years the Yearbook will contain a two-part section on construction job estimating, information on the uses of EN-R's various indexes, new cost trends and the outlook for the future.

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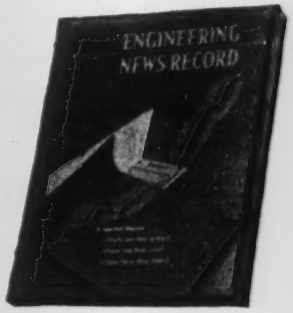

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Tipton finds fortune in water

Denver engineer, jobless when gold field gave out, has built multi-firm enterprise

Water has become a dynamic resource, a basic creator of wealth, a powerful influence on state, national and world affairs.

Tying his fortune to water is a dapper, self-educated, Spanish-speaking engineer named Royce J. Tipton whose ventures read like a dossier on Western water developments during the last quarter of a century.

Tipton, age 60, is no beginner in the game. Nor is he an armchair engineer. He is a consultant who takes to the air to keep tabs on activities flung around the world (1952 air log: 30,000 miles). He thinks nothing of chartering a plane to get a bird's-eye view of dam and reservoir sites.

• **A yardstick of achievment**—His success might be measured by a single fact. Since 1929, "R. J. Tipton, Consulting Engineer" has mushroomed into a Denver concern which requires four other firms to handle operations ranging from the U. S., Mexico and South America to the Far East. Nearly 200 staff members have a hand in the engineering works. At present, over $225-million worth of power and water projects is on the docket.

Tipton and his firm designed and supervised construction of eight World War II projects, including the $32-million Utah Ordnance plant at Salt Lake City and the $22-million Cornhusker Ordnance plant at Grand Island, Neb.

The latest example of his enterprise is a Far East project. One of the firms, Tipton & Hill, Inc., has been hired by Pakistan to help out on water resources and hydrological studies. Tipton is intrigued by the assignment. Pakistan was one of the first countries in the world to develop irrigation. Today it has 20,000,000 acres under irrigation and the Indus River—10 times larger than the Colorado—offers almost unlimited potentialities. The country's present water problem stems from the fact that Pakistan needs additional storage to carry on further development. And that's where Tipton comes in, to seek out dam sites with suitable reservoir capacity behind them.

Tipton began to show interest in engineering at an early age as he followed his mine-managing father from jobs in the legendary gold camp of Cripple Creek, Colo., to the Sierra Madre country of Mexico.

• **Into the mines**—When his father took charge of gold mines at the 100,000-acre Luis Maria Baca ranch in the San Luis Valley of Colorado, young Tipton put off going to college. Instead, he went to work in the mine fields. But along with his graveyard shift—"doing everything from mucking on up"—he prudently mixed in a correspondence course in mining engineering.

ENR photo by Compton

THOMAS CARR FORREST, JR., new president of the National Society of Professional Engineers, is a native of Forreston, Texas, where he was born Jan. 19, 1896. After graduating from Texas A & M, he spent a brief stretch with Trinity Farms Co., then went into consulting practice. He has been in private practice ever since, either under his own name or as a member of the firms of Myers, Noyes & Forrest, Rollins & Forrest, and now Forrest & Cotton. He makes his home in Dallas.

Then the gold petered out. Tipton turned to constructing irrigation works, improving meadows and other lands on the Baca ranch.

At this stage Tipton toyed with the idea of taking up medicine. But experience gained on the irrigation projects convinced him that his future was tied to water engineering. With this in mind, he entered the University of Colorado.

The first World War loomed. Tipton left the classroom a year short of graduation to go overseas with the Army Engineers. When he hung up his uniform at the war's close, he also hung up a shingle announcing private engineering practice ("specialist in water and mines") back in the San Luis Valley.

It was a dream of broader opportunities that finally prodded him to write half-a-dozen men (including Herbet Hoover) who were heading large water use projects. Back came an offer: designing engineer for the Rio Mante irrigation project in Mexico. He snapped at the chance.

Since 1929 Denver has been Tipton's base of operations.

But he's just as much at home in El Paso, Phoenix, Mexico City, Bogota, Santiago or Caracas.

• **Magnum opus**—In Tipton's mind, all his accomplishments are overshadowed by his work in negotiating the Mexican Water Treaty of 1944. This agreement provided, in part, for joint development of the lower Rio Grande by the United States and Mexico.

His interest in this project was whetted first back in 1938 when he became technical adviser to the American section of the Mexican-U. S. International Boundary Commission. But talks regarding the Rio Grande development had been dropped in 1928 and it wasn't until they were renewed in 1943 that Tipton had the chance to play a key role in what turned out to be a final agreement.

Under the treaty, dams and other structures on the lower Rio Grande will use 2.7-million acre feet of water for irrigating 600,000 acres in the United States and 500,000 more in Mexico. There will be extensive power developments, too.

At this moment work is nearing a final phase in the first major unit—the Falcon multipurpose dam 75 miles downstream from Laredo, Tex. This $46-million program includes an earthfill dam 19,000 ft long and 128 ft high plus twin power plants (one

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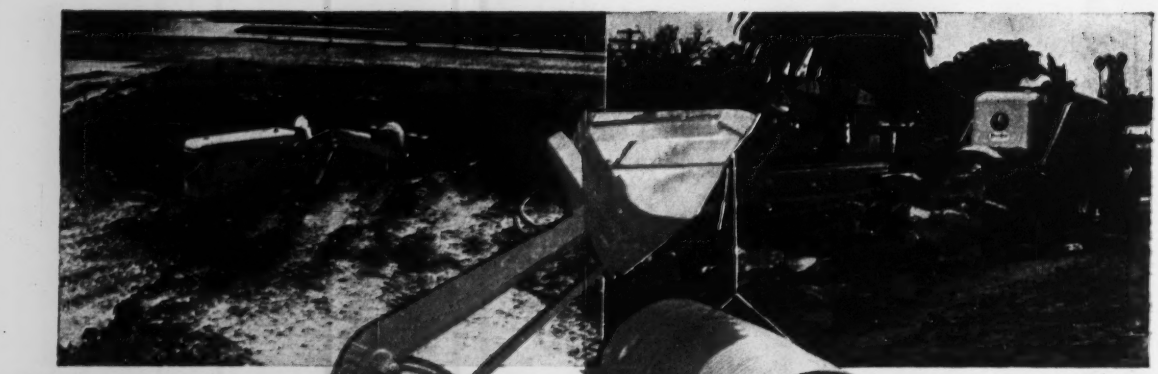

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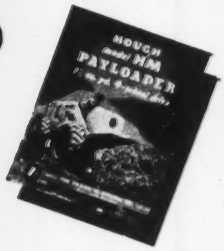

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for Mexico and one for the United States).

This is what Tipton believes about the treaty: "When irrigation and power developments are completed, the projects probably will represent the most important water use facilities ever constructed by two or more countries for their mutual benefit."

As a matter of fact, Tipton has a firm philosophy regarding water-use treaties in general: Contracts reached through negotiations are superior to decisions handed down by courts. "The human relations issue should be a major consideration."

Tipton's main worry today? It's keeping his engineering organization from overreaching. "I have never wanted it to get so large that operations couldn't be closely controlled."

Meanwhile, there are challenges in Pakistan. Or perhaps in Mexico and South America.

Careers . . .

• **Changes**—**John T. Robinson** has been appointed director of the project development division at Francis H. Bulot Consulting Engineers, Inc., of Los Angeles, Pasadena and Costa Mesa, Calif. . . . **George Schumann** has been named to the new position of chief design consulting engineer for Kaiser Engineers in Oakland, Calif. Replacing Schumann as chief design engineer is **F. B. Tobias** . . . **H. Orville Varty** has left Civil Aeronautics Administration's airport office, where he was chief architect, to join the architectural firm of Steward & Skinner in Miami, Fla. . . . **W. T. Cox**, former member of the engineering department

Overseas assignments

Foreign assignments from Washington are on the fall agenda of two leaders in the civil engineering field.

T. A. Clark, Bureau of Reclamation area engineer at Ogden, Utah, and construction chief of the Weber Basin Project, has been appointed to head a water resources development mission to Ethiopia. The two-year assignment, sponsored by the Foreign Operations Administration, primarily concerns construction of the Coca Dam on the Awash River.

Fred M. Hudson, professor of civil engineering at Alabama Polytechnic Institute, will serve during the next academic year as visiting lecturer at Robert College in Istanbul, Turkey. The assignment is under joint sponsorship of the college, the State Department and the Near East College Association.

View at right shows cutaway section to illustrate construction and arrangement of interior working parts of M & H Gate Valve.

M & H Double-Disc Gate Valves Class "C" meet the latest specification of American Water Works Association. The iron body is heavily proportioned. Bonnet flanges are unusually strong. Body is designed with suitable guides to hold discs in alignment. Bronze seat rings are exceptionally heavy. The discs are seated or released by three-point action of the bronze spreaders, each operating independently of the other. There is no sliding or grinding between disc rings and body rings. Either of the two discs may be used on the down stream side of the valve. Discs are interchangeable, and so are the spreaders. For additional information, write or wire M & H VALVE AND FITTINGS COMPANY, ANNISTON, ALABAMA.

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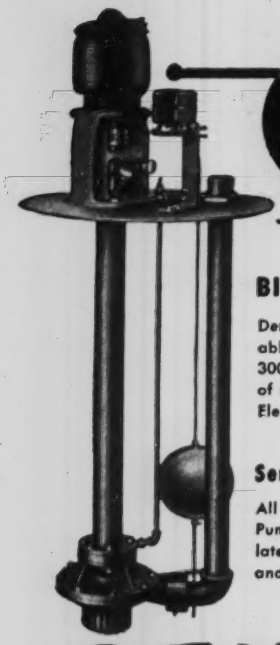

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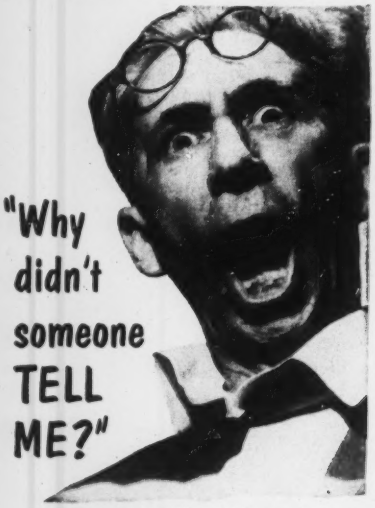

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MEN AND JOBS

of Charlotte, N. C., has become director of public works and city engineer of Gastonia, N. C. . . . **Paul J. Brennan,** former member of civil engineering faculty at Yale, has been appointed chairman of the Department of Civil Engineering at the University of Delaware . . . **Arvin S. Wellborn** has been named chief engineer of the Asphalt Institute in New York City. He was formerly managing engineer of the Institute's Pacific Coast division . . . Three new officers have been elected at United States Steel Homes, Inc., in Chicago: **Harry R. Black,** former executive assistant to the president, now vice-president and treasurer; **Joseph L. Buckler,** former general accountant, to assistant comptroller; **John C. Bird,** former company attorney, to assistant secretary.

• **Government appointments**—**Frank D. Newbury** has been named Assistant Secretary of Defense for engineering . . . **Rear Admiral Wilson D. Leggett, Jr.,** has been appointed chief of the Bureau of Ships for the Navy . . . **Col. Arthur C. Nauman,** recent military liaison officer with the Atomic Energy Commission, has been named Detroit district engineer of the U. S. Army Corps of Engineers . . . **Webster B. Todd,** head of Todd Associates, Inc., New York construction engineering firm, has been appointed director of the Office of Economic Affairs in the new U. S. mission to the North Atlantic Treaty Organization and European regional organizations.

• **Local government appointments**—**Fred B. Dole** has been appointed assistant commissioner of public works in Massachusetts . . . **W. H. Bradford** has been named administrative head of the right-of-way division of the Maine State Highway Department.

• **Honored**—**Hubert E. Sargent,** chief engineer for the Vermont State Highway Department, has been appointed to the planning and design policies committee of the American Assn. of State Highway Officials . . . **Col. E. C. Itschner,** North Pacific Army Corps division engineer at Portland, Ore., has been promoted to the rank of brigadier general.

• **Retired**—**William W. Head,** general superintendent of construction for Warren Northwest, Inc., Salem, Ore., retired Aug. 1 . . . **Edgar E. Foster,** engineer with the Denver hydrology branch of the Bureau of Reclamation's project planning division, will retire in September after completing a Point Four assignment in Iran.

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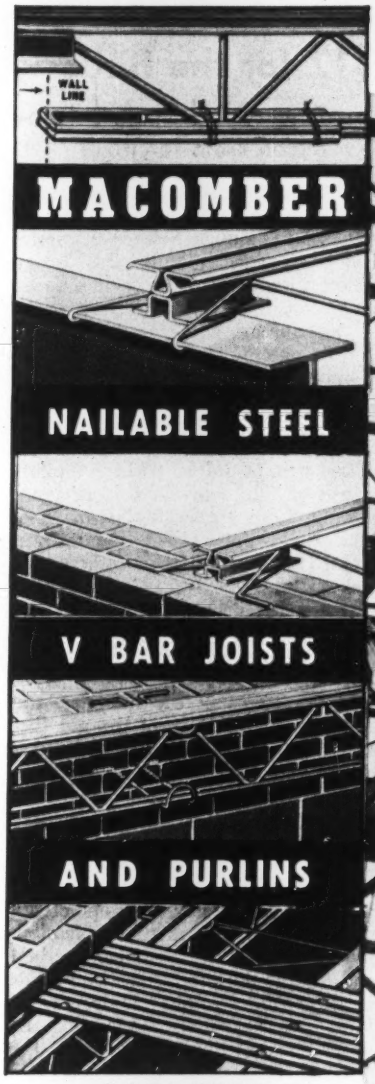

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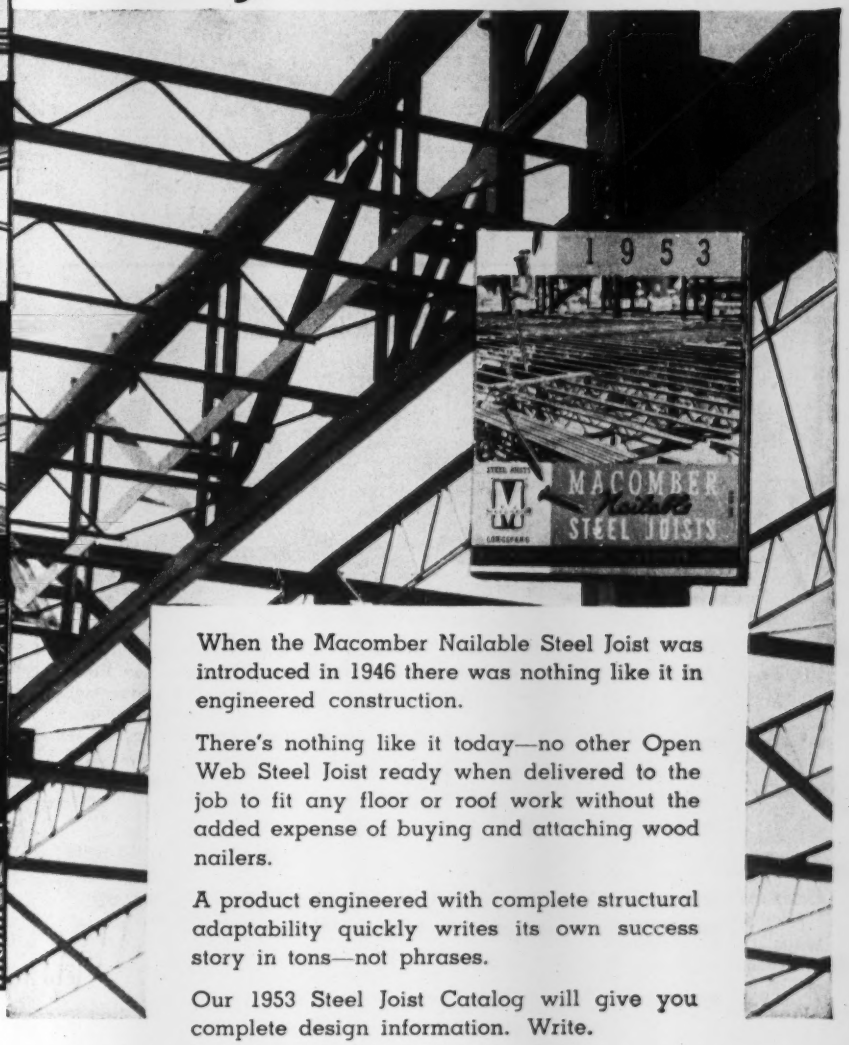

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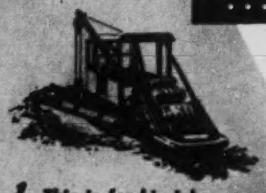

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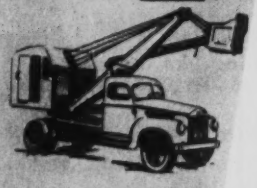

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RESEARCH

B-12 for the birds

Poultry vitamin to be produced from fertilizer

Vern E. Alden Co., a Chicago consulting firm, has signed a contract with the Milwaukee Sewage Commission to produce Vitamin B-12 from Milorganite, the commission's fertilizer made from sewage-sludge.

The vitamin, with a million dollar a year potential gross profit (ENR March 27, 1952, p. 21), will be used at the outset to fortify animal and poultry feed.

The contract authorizes the consulting firm to put up a $25,000 pilot-plant near Chicago. After it has gone through from 40 to 70 tons of fertilizer, the company will demonstrate the B-12 to potential customers and make a market survey. Then it will have a year in which to decide whether to build a $1-million extraction plant near Milwaukee's sewage disposal facilities.

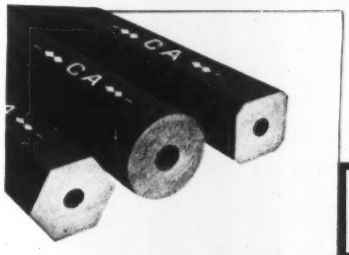
Under terms of the contract, the city will receive 35% of the net (before taxes) resulting from the operation.

• **Utilization of sewage**—Milwaukee was one of the first municipalities to convert the solids of sewage into a high grade fertilizer—Milorganite. Almost 30 years ago the city operated a pilot-plant to determine the feasibility of the activated sludge method and to test the produced waste solids as to fertilizer value. University of Wisconsin scientists undertook the initial study; four years later, the fertilizer value of dried and processed solids was established.

Since 1927, when sales started, almost 1¼-million tons of Milorganite have been sold as fertilizer. Present production is about 70,000 tons per year.

It was the scarcity of protein feeds during World War II that ultimately led to the discovery of Vitamin B-12 in the fertilizer.

The Feed and Fertilizer Control Department for the state of Wisconsin was approached about using Milorganite as a source of protein. This possibility was considered because protozoa in the alimentary tract of cattle convert urea into protein which the animal can assimilate and utilize. The bodies of many protozoa are present in Milorganite—but feeding trials with hogs indicated that the fertilizer could



they're using CRUCIBLE HOLLOW DRILL RODS on the Delaware Aqueduct

CRUCIBLE HOLLOW DRILL RODS are helping construction crews to complete the vast network of dams and tunnels being built to increase New York City's water supply. When finished, water from the Pepacton, Neversink and Rondout Reservoirs, which will be impounded by a trio of earth-fill dams, will be conducted to New York through the 85-mile-long Delaware Aqueduct.

In rock drilling operations for the dams, effluent chambers and connecting tunnels, Crucible Hollow Drill Rods have proved their ability to outperform other types . . . to withstand the severest punishment with minimum breakage and bit loss.

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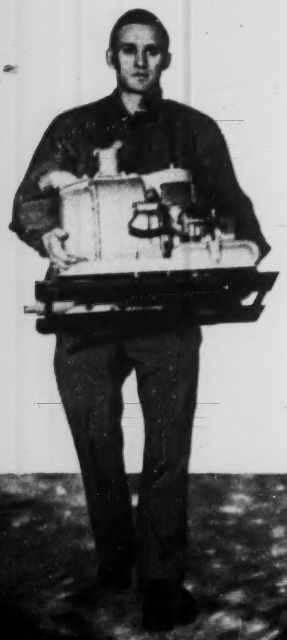

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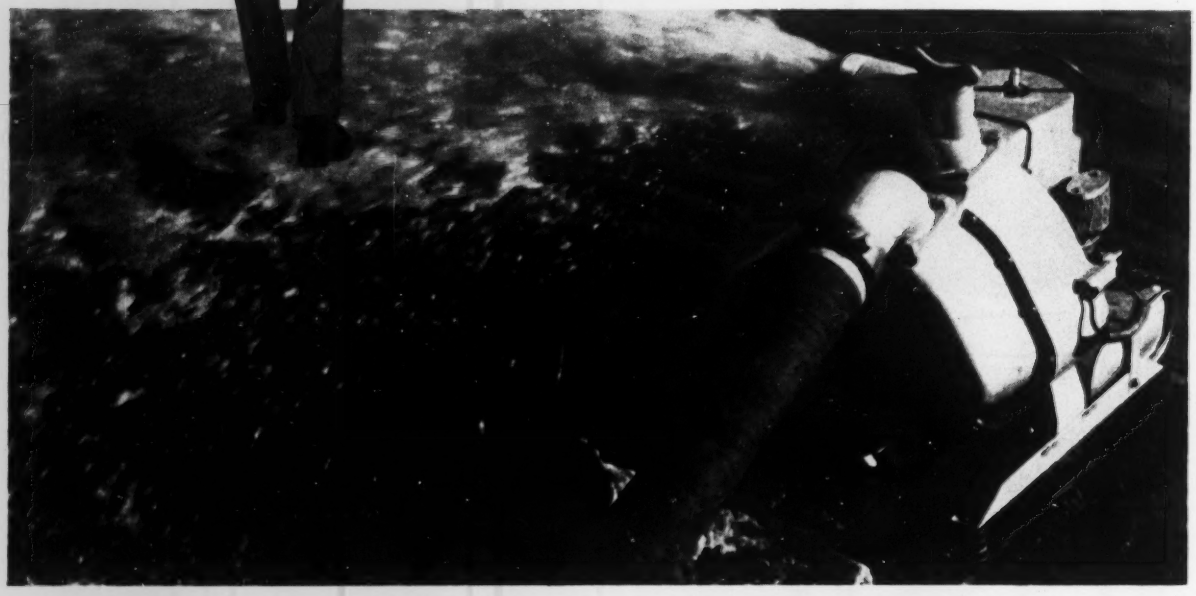

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not be used to substitute all or a part of the protein commonly furnished by soy bean meal.

• **Fermenting agent found**—At the same time, chicken and rat feeding tests were conducted and assays showed that the vitamin content of Milorganite was comparable to yeast.

Because of the unusual type of fermentation involved in the production of activated sludge, it seemed possible that substances might be present which could beneficially effect other commercial fermentations.

Early in the testing program, it was found that adding a small amount of powdered Milorganite to a carbohydrate-containing mash—made with pure sugars, molasses or converted grains—speeded up fermentation. Also, higher yields of alcohol were obtained from molasses or converted grain mashes when the fertilizer (0.01 to 0.25% by weight) was added.

This accelerating effect on the sugar fermentation by yeast was attributed to a fermentation factor. Since it did not appear to be any of the known vitamins, it was thought that the agent was a previously undiscovered vitamin of the B-complex group.

Then—while this fermentation factor was still under investigation—public announcement came of the isolation of Vitamin B-12.

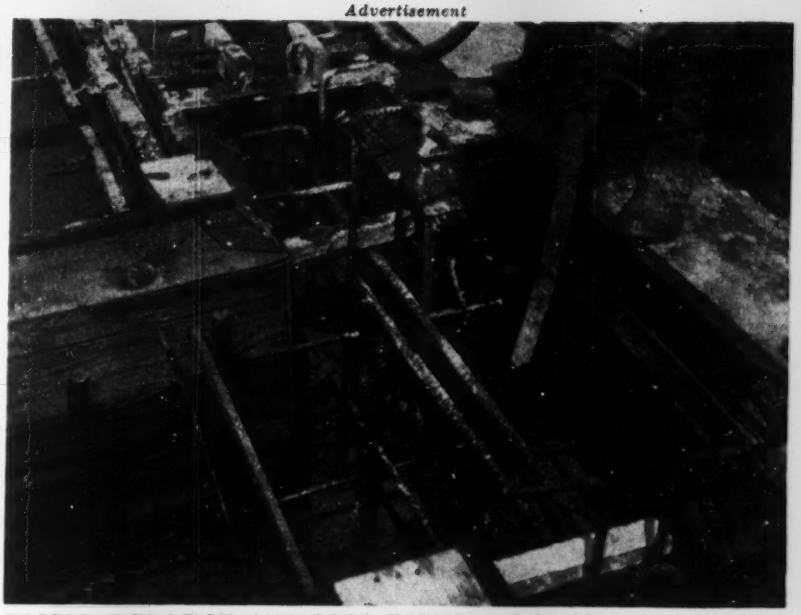
• **Testing for B-12**—In view of what already had been learned about the characteristics of dried activated sludge, it seemed worthwhile investigating the possibility that Vitamin B-12 might be present in the sludge. Analytical examination of a number of samples proved that the vitamin was actually present—and in comparatively large amounts. Subsequent tests confirmed the fact: Milorganite is one of the richest sources yet discovered for B-12.

Further extraction, concentration and isolation processes by pilot-plant operations prepared a Vitamin B-12 concentrate of relatively high potency (25-50 mg Vitamin B-12 per pound of solids) from the fertilizer.

Now, under the new contract, large-scale production of the concentrate is a probability and it seems possible that the Milorganite will prove to be a convenient and economical Vitamin B-12 source for the feed industry.

The future of this fertilizer is an interesting speculation. Already it had been found to contain one unknown vitamin-like material, Vitamin B-12 in large quantities, plus smaller amounts of many known vitamins.

Advertisement



PROPER VIBRATION AND GOOD FORMS used in this well-planned box girder intersection make it easy to produce the best possible concrete. Good vibration technique is simple with good equipment, and . . .

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One of the many ways experienced concrete foremen get maximum benefit from vibration is by planning concrete placement so each new dump is backed into a previous dump. This results in a smooth surface (no rock pockets) with maximum bond and greater strength. In the above photo the workman has just finished vibrating a dump at the center of a box girder intersection. As each succeeding dump is placed he will vibrate from the center outward, working it into concrete previously placed in the side members.

Appearance of sheen on the surface of the concrete gives visual indication that vibration is complete. With the modern high frequency vibrators pioneered by VIBER this requires only about 10 to 30 seconds, depending on the characteristics of the concrete.

• **Vibrator Operators** soon develop a "feel" which tells them the exact condition of concrete during vibration without seeing it. An experienced operator depends on this "feel" and the sound of his vibrator more than on the appearance of the concrete to tell him when vibration is completed.

Experienced operators describe the feel of concrete when the vibrator is first inserted as "rough" and "rocky." In a matter of seconds it "smooths out" and becomes "creamy," at which point vibration is complete and the unit may be removed from the concrete.

• **Good Forming** and proper vibration are essential where finished appearance is important, as it was on this overpass built by Erickson, Phillips, and Weisberg as part of the East Bay Freeway in Oakland, California. Tight forms made of well-seasoned lumber adequately braced can take full advantage of vibration to produce smooth, rock pocket-free concrete. VIBER'S replaceable rubber tipped vibrators are specially designed to prevent any damage to such forms, which might cause blemishes on the finished concrete surface.

• **For The Complete Story** on vibration know-how or further information on VIBER'S complete line of internal and external vibrators, contact your authorized distributor or VIBER COMPANY, 726 South Flower Street, Burbank, California. Dept. 67.

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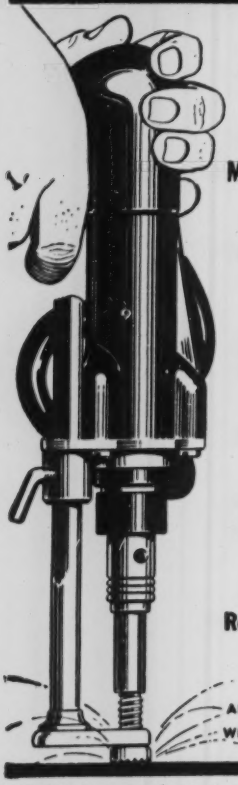

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LEGAL

Contractor must know of changes in program

The Board of Education of the City of New York contemplated constructing an addition to a school building. The work was to be performed under four separate contracts: (1) general construction, (2) plumbing and drainage, (3) heating and ventilating, and (4) electrical work and fixtures. Bids for the four jobs were advertised at the same time, but as the total of the low bids for the four jobs exceeded the amount appropriated, only contracts for general construction and electrical work were let. The heating and plumbing contracts were not let until six months later, and the electrical contractor was not advised of this delay when he received his contract.

This electrical contract was to be performed in 405 days. Owing to the delay in awarding the other contracts, it took the contractor 880 days to complete the work. During this period the cost of labor and materials increased. The electrical contractor claimed that it did not know that the other contracts had not been awarded until after it had completed the work. It then brought an action to recover damages, measured by the difference between the fair and reasonable value of the work performed and the contract price. It obtained a recovery. This judgment was reversed by the Appellate Division (Bank v. Board of Education of City of New York, 280 App. Div. 58, 111 N.Y.S. 2d 130), that court holding that the failure to award the four contracts at the same time did not constitute actionable fraud. The Court of Appeals reversed the judgment of the Appellate Division and ordered a new trial, that court holding that the withholding by the Board of Education of the fact that it had concluded to change its plans and to delay indefinitely the award of two of four contracts, each of which called for integrated work and coordination by the electrical contractor, constituted constructive fraud.

"Silence by the defendant as to a change in plans so important to the timely performance of the work plaintiffs were about to undertake, served to mislead them into a false assurance that the work contemplated by their bid would progress according to plan along with the integrated work of the other three contracts. True, no duty rests upon a party to a contract to speak where silence does not constitute deception. Silence may, however, constitute fraud where one of two parties to a contract has notice that the other . . . is acting upon a mistaken belief as to a material fact. (Donovan v. Aeolian Co., 270 N.Y. 267, 271)." [1]

[1] Bank v. The Board of Education of the City of New York, 305 N. Y. 119, N. Y. Court of Appeals, March 5, 1953.

Acceptance of an offer must conform to offer

"It is a fundamental rule of contracts that to constitute a contract by offer and acceptance, the acceptance must conform exactly to the offer, and a letter written in reply to the offer, which restates the terms of the offer with some variations, though slight, cannot be regarded as a consummation of the contract." [1]

[1] Valdez v. Viking Athletic Association, 110 N.E. 2d 680, Appellate Court of Illinois, Feb. 11, 1953.

Non performance not excused because of difficulties

"It is a settled rule that where a person by his contract or agreement charges himself with an obligation possible to be performed, he must perform it, and he will not be excused therefrom because of unforeseen difficulties, unusual or unexpected expense, or because it is unprofitable or impracticable." [1]

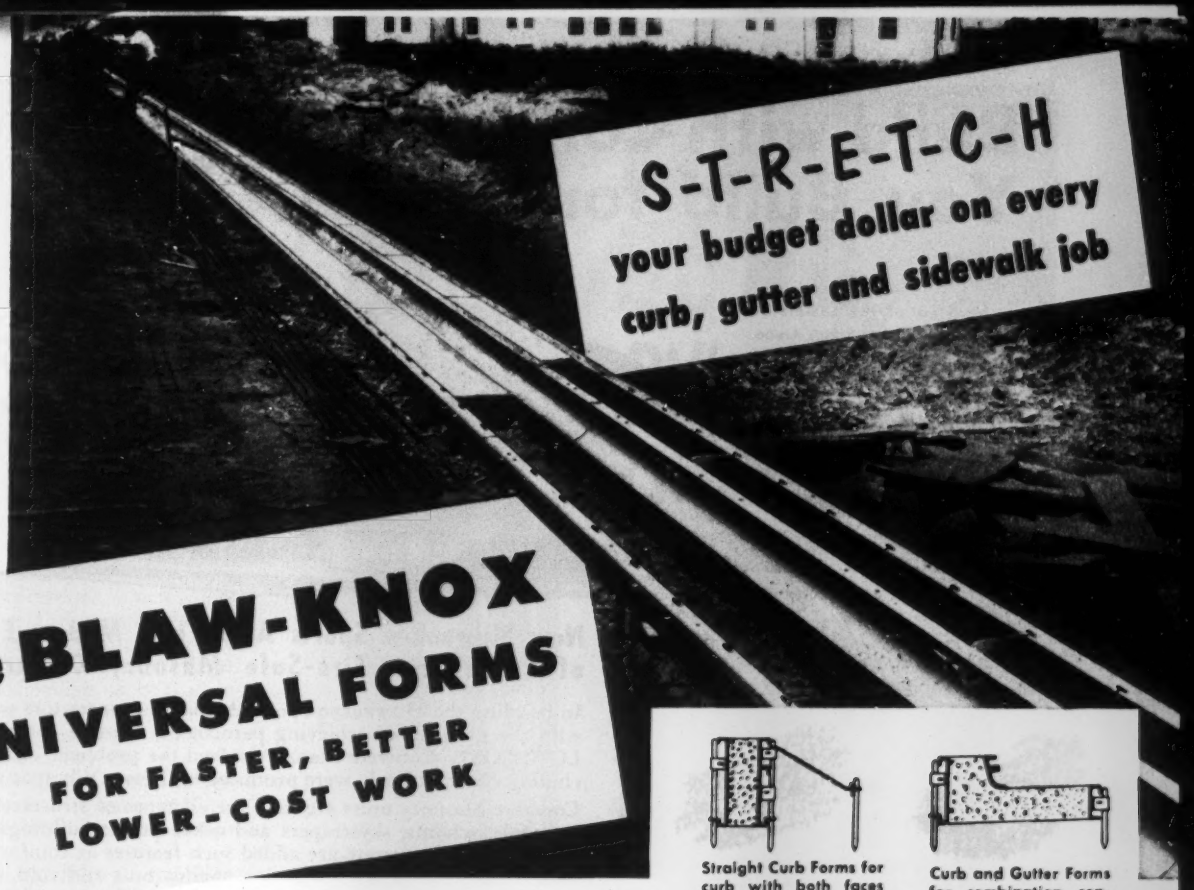
[1] Clinchfield Stone Co. v. Stone, 254 S.W. 2d 8, Court of Appeals of Tennessee, Oct. 10, 1952.

Changes in a contract

The "parol evidence rule," which prohibits the admission of oral evidence to vary or contradict the terms of a written contract, does not apply to or prohibit a subsequent modification by word of mouth. The rule applies only to prior or contemporaneous statements or agreements which induced the written agreement. Such oral statements, representations, warranties or agreements are excluded because they have either been abandoned or merged into and superseded by the written agreement.

However, it is well settled that a written agreement may be modified by a subsequent written or oral agreement and that this modification may be shown by writings, by words or by the conduct of the parties, or by all three.[1]

[1] Elliott-Lewis Corp. v. York-Shipley, Inc., 94 A. 2d 47, Supreme Court of Pennsylvania, Jan. 7, 1953.



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Straight Curb Forms for curb with both faces vertical. Auxiliary bracing system provides lateral stability.

Curb and Gutter Forms for combination concrete curb and gutter when curb is battered.

Sidewalk Forms are available for any required width or thickness of sidewalk.

Flexible Steel Radius Forms for curved work of variable radius.

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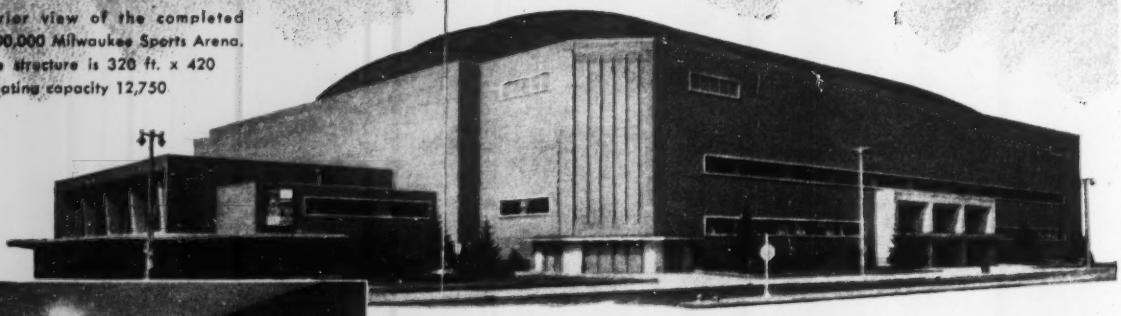

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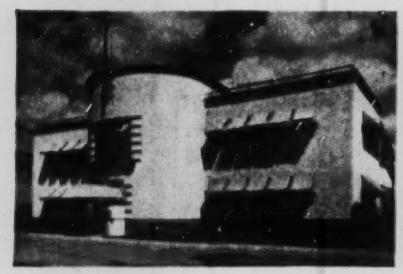

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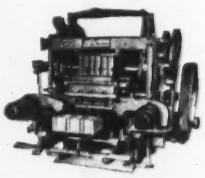

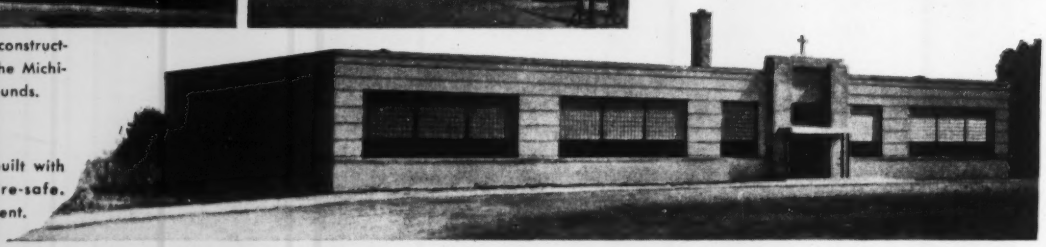

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BOOKS

Railway civil engineering

RAILROAD ENGINEERING—Volume 1. By William W. Hay. 583 pp. John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. $7.50.

A new text covering the civil engineering aspects of railroad engineering has been badly needed for some time. The two texts that were in use for many years, "Railway Track and Maintenance" and "Elements of Railroad Engineering", now are really out of date. Prof. Hay's book appears to supply that need.

Somewhat more than half of Prof. Hay's book is devoted to railroad maintenance operations, which is logical as most of the current work of railroad civil engineers is centered on maintenance of existing track. However, the fundamentals of railroad location, such as the relation of grades and curvature to operating costs, are adequately covered in the introductory chapters. Thus the engineer faced with a line revision problem will find the essentials to a solution in this text.

Sources are carefully documented, including Wellington's Classic "Economic Theory of the Location of Railways" and the Manual and Proceedings of the American Railway Engineering Association.

Reports and pamphlets

A NEW FACE FOR AMERICA—A program of action planned to stop slums and rebuild our cities. Department of Housing Rehabilitation, National Association of Home Builders, 1028 Connecticut Avenue, N. W., Washington 6, D. C.

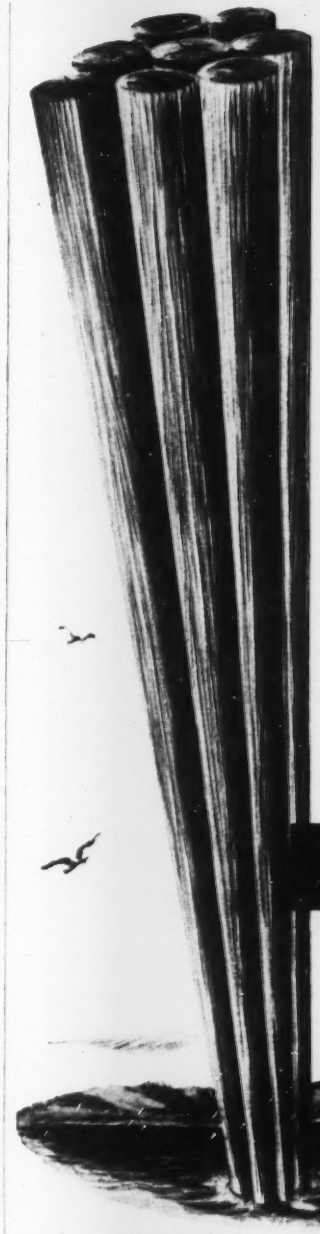
SYMPOSIUM ON DIRECT SHEAR TESTING OF SOILS—Special Technical Publication No. 131, American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa. $2.00.

SYMPOSIUM ON THE USE OF RADIOISOTOPES IN SOIL MECHANICS—Special Technical Publication No. 134. American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa. $1.25.

A CODE OF CONSTRUCTION SAFETY MEASURES—National Research Council, Ottawa, Ontario. 10¢.

ANALYTICAL STUDIES OF CONTINUOUS STRUCTURES—Engineering Report No. 15, Iowa Engineering Experiment Station, Iowa State College, Ames, Iowa.

HOME SHELTERS FOR FAMILY PROTECTION IN AN ATOMIC ATTACK—Technical Manual 5-5, Federal Civil Defense Administration. Superintendent of Documents, Washington 25, D. C. 30¢.



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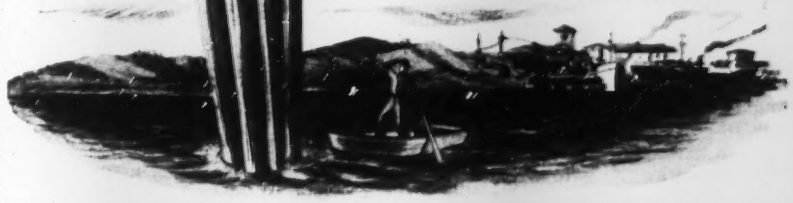

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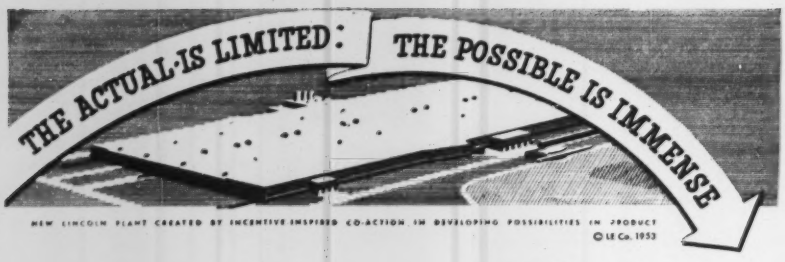
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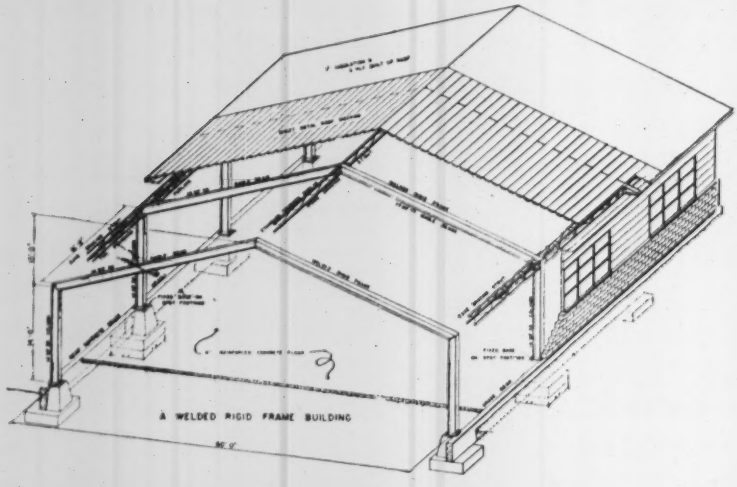

Fig. 1. Welded Frame Building *uses longitudinal rigidity of roof by running welded roof decking lengthwise.*

SIMPLE CONSTRUCTION USES PLAIN STEEL SHAPES

Eave Bracing Strut consists of two standard welded open web roof joists of the same depth as the depth of the 14″ W.F. 30 lb. rigid frame beam set in positions so that one trussed purlin is normal to the roof and the other normal to the wall and with the inside edges of their bottom flanges joined together by welding to form an angle strut.

These standard purlins are butt welded to the edges of the rigid frames to constitute the main portions of the strut while the outside corner is made of another piece of bent plate.

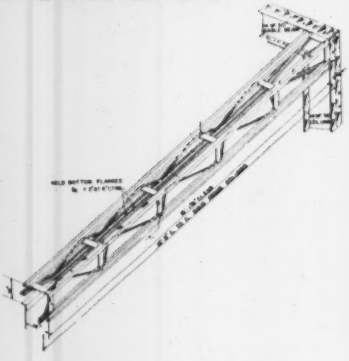

Fig. 2. *Eave bracing strut.*

This plate is bent to conform to the shape of the outside corner of the rigid frame so that it can also be butt welded in between the frames to constitute the outside corner strut.

It is then joined to the other trussed purlin sides by means of the intermediate 3″ x ¼″ tie plates located in the planes of the roof and wall surfaces. Thus a strong and sturdy box strut is made of standard and easily obtainable elements so that it will brace the knee against all of the various and sundry forces that can combine to cause buckling.

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By **Ned L. Ashton**
Consulting Engineer
Iowa City, Iowa

THE popularity of the rigid frame type of building for such structures as warehouses, industrial plants, churches, bowling alleys, swimming pools, gymnasiums, auditoriums, garages, super-markets, etc., demonstrates its attractiveness and efficiency.

By eliminating splice plates and rivets, and utilizing the benefits of rigid framing, cost savings averaging 20% are realized on many types of building construction. Fewer man-hours and simpler equipment are required for erection.

At the present time most rigid frame buildings, made possible by arc welding, are built as two hinged frames with auxiliary purlins and girts running lengthwise of the building to support roof decking and sidewall material running crosswise. The purlins, usually consisting of small channels or angle and zee bar sections or light open web welded joint sections, are placed on top of the frames and the strength of the decking is not utilized for any other purpose.

The building frame in Fig. 1 is made differently. It consists of a typical 60′ x 150′ building 14 feet high at the eaves and 24′ at the center. The metal decking rests directly on top of the rigid frames and spans lengthwise of the building without the aid of any other auxiliary purlins.

When the roof decking is combined with the bracing purlins at the eaves and with the ridge strut it constitutes a strong lateral girder which prevents the intermediate rigid frames from moving sideways at the eaves.

Longitudinal rigidity of the roof, which is accomplished by running the decking lengthwise, constitutes an improvement compared to the conventional type of two hinged frame buildings with auxiliary purlins.

The bracing action of the roof is so helpful that the rigid frames can all be fixed at the bases with ordinary sized footings and the frames can be made of ordinary smaller sized wide flanged "I" beams throughout the full length of the frame without any special haunched or tapered sections at the knee.

OBITUARIES

W. H. Hitzelburger, 59, vice-president of the Republic National Bank of Dallas, Tex., who was in charge of the construction of the bank's new 40-story building, died Aug. 15. For five years he had been district manager of the Portland Cement Association, representing the cement companies of Texas. He was elected executive vice-president and general manager of the State Fair of Texas in 1946. The fair was closed during World War II. From 1946 to 1949 the fair grew to be the largest state fair in the United States. Besides rehabilitation of buildings and grounds used by the War Department for four years, Mr. Hitzelberger directed more than $4,000,000 of new construction on the fairgrounds, including the Cotton Bowl Stadium, with a seating capacity of 75,000.

Raymond J. Weppner, 56, a construction engineer for the General Electric Co. at Erie, Pa., for 24 years, died there Aug. 9. He was a 1924 graduate of Carnegie Institute of Technology.

Ivan N. Zarobsky, 61, professor and head of the departments of engineering drawing and mechanical engineering design at the University of Toledo, and a member of the faculty for 33 years, died at Toledo Aug. 12. He was a 1927 graduate of Ohio State University and was co-author of a textbook, "Fundamentals of Machine Design," published in 1938 and adopted in 40 colleges and universities.

Elvyn K. Mentzer, 68, who retired last year as assistant general manager of the Boston & Albany Railroad's civil engineering department, died at New London, N. H., on Aug 15. He had been in engineering service on the Pennsylvania and B. & A. Railroads for 40 years.

Conrad O. Mannes, 67, city engineer of Kelso, Mich., died there Aug. 14. He had been a civil engineer for 50 years, first in his native Norway and for 27 years in Seattle, before taking the Kelso post a year ago. He was a former King County engineer at Seattle.

Thomas L. Welles, Jr., 61, for 20 years sales manager for the Sanymetal Products Co., Cleveland, where he went in 1926 to join the engineering staff of the former Crowell and Little Construction Co., died Aug. 10. He was a graduate of Cornell University in 1914.

Henry W. Engelman, 74, a civil engineer, who was with the New York Central System for 25 years, died Aug. 10 in Cleveland, Ohio. He was born in Germany, where he was educated before coming to this country in 1911. He designed bridges and other structures for the railroad.

C. N. Campbell, 73, a retired civil engineer, died at Houston, Tex., Aug. 4.

William Sidney Smethurst, 70, of Raleigh, N. C., for 22 years architectural designer in the bridge department of the North Carolina State Highway Department, died Aug. 4.

Fred A. Voorhies, 59, a civil engineer who had been chiefly in military or government work died at Louisville, Ky., Aug. 2. He began with the Army in 1914 and in 1920 went with the Kentucky Highway Department. Later he was employed by the Bethlehem Steel Corp., the Corps of Engineers, the N. Y. City Board of Transportation, the Public Works Administration, the U. S. Forestry Service, the Reconstruction Finance Corp. and the War Assets Administration.

Thomas P. O'Neill, 78, who retired in 1947 as superintendent of sewers at Cambridge, Mass., after 38 years' service, died recently.

W. P. Neel, 52, for 17 years chief engineer of the Mobile Steel Co., Inc., Mobile, Ala., died there recently.

John Farrington Ferguson, 69, head of Ferguson Engineers, Toronto, Ont., died July 9 at his home. He began his career as a consulting engineer in Chicago in 1922.

Frederick S. Barckhoff, 63, city engineer for Salem, Ohio, for 26 years, and city engineer for nearby East Palestine, for 30 years, died Aug. 11.

Frederick A. Burdett, 80, retired consulting engineer, died in New York City, Aug. 12. He was founder and for many years president of F. A. Burdett & Co., civil engineers.

Loren A. Griffin, 46, of Elizabeth, N. J., supervisor for the Chicago Bridge and Iron Co., which he served for 25 years, died at Philadelphia, Pa., Aug. 24. His work had taken him to Palestine, India, South Africa, and many islands of the Caribbean.

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BRITONS CAN HAVE PROSPERITY —If They Want It

What is required to get Britain, our key ally in the grand alliance of the free world, firmly back on her economic feet? The purpose of this message is to throw light on this crucial problem, which afflicts our other European allies also.

At the moment, Britain is enjoying a respite from the economic crises (of 1947, 1949 and 1951-52) which have plagued her postwar course. This respite may well continue for some time. But almost no one whose judgment is trustworthy believes that Britain has acquired sufficient economic strength to safeguard her against further economic crises in the years immediately ahead.

Two British Views

New and clear light on what should be done to that end has recently been shed by two noteworthy British publications. One is a book, "We Too Can Prosper," by Graham Hutton, distinguished British economic writer and administrator. The other is an article, "The Riddle of Prosperity," published by THE (London) ECONOMIST, Europe's most eminent economic journal.

Combined, these two publications present in sharp relief the basic problem that must be handled successfully if Britain is to be safely solvent. As is implied by its title, ***the Hutton book demonstrates that Britain can be made prosperous by readily feasible procedures, patterned on what has been done in the United States, to increase its industrial efficiency. But, says THE ECONOMIST, with Mr. Hutton's book in mind, this is not the most basic problem, which is, "How shall we make the British people determined to be prosperous?"*** This is a problem of incentive or motivation.

Compared with that of the United States, average industrial efficiency in Britain, as in most of Western Europe, is low. In his book Mr. Hutton remarks that "fifty years ago an American industrial worker turned out roughly the same amount in a day as his opposite number in Britain, Germany or France. . . . Today, he turns out from two to five times as much."

In large part it is this lag in output per hour or "productivity," as the technicians call it, which makes Britain and other key countries in Western Europe a continuing prey to economic crises. Moreover, the great disparity in productivity between the U.S.A. and most

of Western Europe is a major barrier to knitting the free world into a smoothly working economic whole. As one observer put it, "when the American economy catches a cold, the European economy gets pneumonia." This is largely because Europe is so much weaker in productive strength.

No Shortage of Knowledge

Yet the knowledge which would enable the countries of Western Europe, and particularly Britain, to increase their industrial productivity has been mobilized and is readily available to them. It is with this process for Britain that Mr. Hutton's book is concerned. In the book he summarizes the findings and conclusions, virtually all of them unanimous, of 66 teams, composed of British industrial managers, technicians, shop workers and labor leaders. Over a period of three years these teams completed a comprehensive series of inspection and study trips in the United States under the sponsorship of the Anglo-American Council on Productivity. The product of that effort, he remarks, is "a set of documents the like of which, on such a scale and of such practical value, has never been seen in the history of international and cultural borrowing."

Psychology the Key

From study of these documents, Mr. Hutton concludes that better capital equipment is the key technical ingredient of higher industrial productivity in Britain, and constitutes "the most urgent . . . need of British industry." But he finds that ***even without new capital equipment a "15% rise in productivity can still be achieved by reorganization of work," and that such an increase would "solve Britain's chief social and economic problems."***

Then why is not such an increase in productivity, demonstrated by the Anglo-American productivity teams to be so clearly within technical grasp, promptly forthcoming? Mr. Hutton, quoting one of the team reports, remarks that, ***"'the greatest obstacles to increased productivity are psychological rather than technical.'*** We have to deal first and foremost with men, not machines." And THE ECONOMIST, pursuing the line of inquiry suggested, reaches the conclusion that, by and large, the people of Britain do not want to prosper by being more efficient. THE ECONOMIST says:

> "The real secret of American productivity is that American society is imbued through and through with the desirability, the rightness, the morality of production. . . . But in Britain, if any moral feeling at all survives about economic matters, it is usually a vague suspicion that economic success is reprehensible and unworthy. From this difference in attitudes everything else follows."

"How," asks THE ECONOMIST, "shall we set about restoring some belief in the rightness of effort, the morality of success?" For this question it has no ready answer. Neither have we. We are confident that the British people will neither be cajoled nor coerced into trying to match our productivity. Basically the problem seems to be to demonstrate clearly to them the truth of the proposition, set down by Graham Hutton, that "there is no goal, aim or end before a Good Society which the raising of that society's material productivity cannot render easier of achievement." Doing that in an old and settled country like Britain is obviously an extremely formidable undertaking. But ***until it is done, the crucial job of getting Britain and the rest of Western Europe firmly on its economic feet will remain to torment all of us.***

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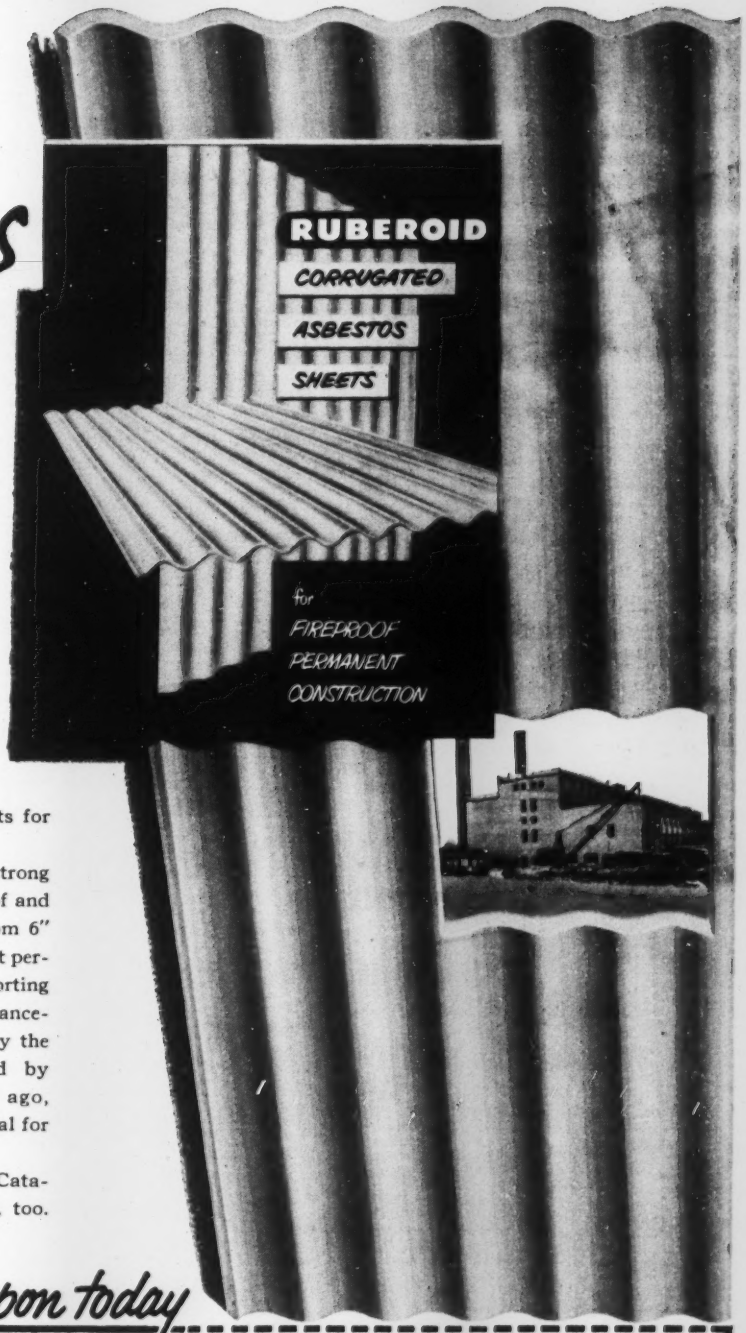

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

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J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M E SCIORRA, F S. DEMBEK, Reports.
J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Me., Limestone**—ROADS, etc.—B.A. 9/10—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., roads, utilities FY 53, Limestone Air Force Base, Eng.-19-016-54-?, $400,000. Plans deposit $10, refundable. CD 8/14.

BIDS ASKED—BUILDINGS

▲ **Conn., West Hartford**—SCHOOL—B.A. About 9/16—Town, Supt. Schools, Memorial Dr., new Elementary and Junior High School, King Philip Dr. $3,500,000. CD 5/26.

▲ **Mass., Fitchburg**—HOSPITAL—B.A. 9/23—City, Bd. Trustees Burbank Hospital, City Hall, hospital addn., alterations, Nichols St. $2,500,000. Plans deposit $50. refundable. Curtin & Riley, 45 Newbury St., Boston, archts. CD 2/13/51, under Commercial Buildings.

SOON LETS CONTRACT—BUILDINGS

Me., Millinocket—HOSPITAL—Soon lets contract—At office Crowell Lancaster & Higgins, archts., 6 State St., Bangor, Me., hospital, Knox and Poplar Sts. for Millinocket Community Hospital, Maine Ave. Millinocket, Me. $600,000. CD 8/12.

HEAVY CONSTRUCTION

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† **Providence Wire Works, Inc.,** 84 Sprague St., Providence, R. I. CA **$66,951**, est. $60,000. security fencing, Limestone Air Force Base, ENG. 9-016-53-93, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 9/19/51.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Dooley Bros. Inc., 39 George St., Roxbury, Mass. LB **$77,824**, est. $84,000. hy. work Chelsea St., East Boston. Bids Aug. 18. CD 8/5.

Baker & Co., Inc., 3475 Washington St., Jamaica Plain, Mass. LB **$67,303**, est. $65,000. reconstr., resurf. roadways, arborway Jamaica Way and Franklin Park, Jamaica Plain, BOSTON, MASS. City, Park Dpt., 33 Beacon St., Boston, Mass. Bids Aug. 18. CD 8/11.

† **George A. Fuller Co.,** 11 Beacon St., Boston, Mass. LB **$343,850**, est. $500,000. alert hangar Hanscom Air Force Base, ENG-19-016-54-11, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Aug. 18. CD 8/3.

Joseph P. McCabe, Inc., 509 E. First St., South Boston, Mass. LB **$77,413**, est. $75,000. Contr. 2 John Hancock Parking area, rear E. Side Hancock St., QUINCY, MASS. City, Comr. P. Wks. Dpt., City Hall Annex, Quincy, Mass. Bids Aug. 18. CD 8/12.

BUILDINGS

LOW BIDS AND CONTRACTS

Brown Constr. Co., 562 Congress St., Portland, Me. LB **$404,854**. MEDICAL SURGICAL BUILDING., FAIRFIELD, ME. State Dpt. Institutional Services, State House, Augusta, Me. Bids Aug. 19. CD 7/28.

Palmer-Zoppo Co., Inc., 840 Providence Hy., Norwood, Mass. CA Est. **$550,000**. COMMMERCIAL BLDG., Old Colony Rd., DORCHESTER, MASS. College-Town Sportswear, 210 Lincoln St., Boston, Mass. Samuel Glaser Assoc., 105 Newbury St., Boston, Mass., archts.

Theodore Loranger & Sons, 404 Nash Rd., New Bedford, Mass. CA Est. **$600,000**. HOME for Aged addn., Our Lady's Haven, 71 Center St., FAIRHAVEN, MASS. R.C. Diocese of Fall River, Most Rev. James L. Connolly DD, bishop, 394 Highland Ave., Fall River, Mass. Bids Aug. 14. CD 8/5.

H. V. Collins, 7 Dyer St., Providence, R. I. CA Est. $600,000. HOSPITAL addns., alterations, Peace St., PROVIDENCE, R. I. St. Joseph's Hospital, Broad St., Providence, R. I. Bids July 31. CD 7/8.

▲ **Mondelci & Benvenuti,** 16 Elm St., New London, Conn. CA **$2,239,999**, est. $2,300,000. CONTINUED TREATMENT bldg., State Hospital, Proj. B/A-K-81, NORWICH, CONN. State P. Wks. Comr., State Office Bldg., Hartford, Conn. Bids July 10. CD 7/22, under LB.

Beaudry Constr. Co., 142 Hancock St., Springfield, Mass., LB, **$578,688**, Elementary SCHOOL, East St., ROCKVILLE, CONN. Town School Bldg. Comn., Rockville, Conn. Bids Aug. 18. CD 8/14.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New York—TOLL BOOTHS—B.A. 9/17—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. fabricate, deliver and erect 117 toll booths New York State Thruway-Hudson-Catskill-Mohawk and Ontario Sections, T.T.B. 53-1, Albany, Greene, Schenectady, Herkimer, Madison, Montgomery, Oneida, Cayuga, Onondaga, Seneca, Genesee, Monroe, Ontario, Erie, Orange, Rockland, Ulster and Westchester Counties. $680,000. Plans deposit $25; adv. ENR 9/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

S. Griffin Wise Co., 26 E. First St., Mt. Vernon, N. Y. LB **$74,894**, est. $68,090, Barge Canal Dams No. 4 and 5, Scotia and Rotterdam, M 53-2, Schenectady Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Aug. 20. CD 7/28.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany

Walsh Constr. Co. and C. J. Langdenfelder & Son, Inc., 1 East 43 St., New York 17, N. Y., LB **$14,816,126**, est. $15,697,000. New York State Thwy-Catskill Sect.-Sub. 6 (Harriman-Newburgh); Harriman Interchange; West Point-Central Valley; SH 5328 B; Newburgh-Campbell Hall, SH. 153 and 16 Town or County Cross Roads. 6.42 mi. Acc., 14.26 mi. Thy. CT. 53 11, ST 53-27, RC 53 106, Orange Co.;

"Les" Strong Constr. Co., Whitney Point, N. Y., LB **$110,567**, est. $114,000, Morristown-Hammond, Pt. 2, SH 970A, 0.68 mi. FARC. 53 79, St. Lawrence Co.;

Daniel F. MacNamee & Co., Inc., 271 North Ave., New Rochelle, N. Y., LB **$81,971**, est. $84,000, Ossining Village, SH 5482-1890, Ossining Village Conn. SH 9266, 0.7 mi. RC 53-107, Westchester Co.;

James P. McPhilomy, Albany Post Rd., Montrose, N. Y., LB **$59,810**, est. $67,000. Taconic State Parkway, Bear Mount State Parkway, 4.36 mi. TSP. 53 2, BMSP 53-1, Westchester and Putnam Counties;

Potter DeWitt Corp., Pavilion, N. Y., LB **$156,174**, est. $173,000. Edgemere Dr. (Co. Rd.), Contr. 2, 0.74 mi. FASS 53-8, Monroe Co.; LB **$590,536**, est. $638,000. Alpine-Cayuta Pt. 2, and Cayuta-Swartwood Pts. 1 and 2, SH 8242; Cayuta-Swartwood, Pt. 2, SH 1915, 8.37 mi. FARC 53 95, Chemung and Schuyler Counties;

Twin Village Constr. Corp., Depew, N. Y., LB **$181,924**. est. $185,000, City of Jamestown; East Fourth St. and East Second St. (Pendergast Ave. to Winsor St.), 0.45 mi. FAC. 53-16, Chautauqua Co.;

L. G. De Felice & Son, Inc., Nettleton Ave., North Haven, Conn., LB **$6,720,579**, est. $7,506,000. New York State Thwy.-Hudson Sect., Sub. 8 (Suffern-Nyack); Spring Valley-Suffern SH 9000; Spring Valley-Knapps Cors. SH 689; 9 misc. cross roads and Erie R. R. relocation, 3.17 mi. Acc., 4.84 mi. Thy., RT 53-8. ST 53-29, RC 53-109, Rockland Co.;

John M. Robertson, Inc., Oneonta, N. Y., LB **$304,694**, est. $340,000. Richmondville-Summit, SH 1234, 2.05 mi. FARC 53-08, Schoharie Co.;

received no bids Aug. 20, New York State Thwy. So. West. Conn., Sub. 11 (N.Y.C. Line-Tuckahoe Rd.) Tuckahoe Rd. Interch; Hudson Sect.-Sub. 10. (Tuckahoe Rd.-Tarrytown) and 5 secondary cross roads, 1.82 mi. Acc., 1.39 mi. Thy. FASWC 53-2. FAST. 53 28. RT 53-7, Westchester Co., est. **$3,675,000**. Bids Aug. 20. CD 7/28.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,

A. J. Cunningham & Sons, 370 Newkirk Ave., Trenton, N. J., LB, **$1,784,997**, exten. Trenton Freeway at Strawberry St. to Whitehead Rd., 0.965 mi. Rt. 26 Est. (1927) Mercer Co. Bids Aug. 18. CD 7/30.

Van Lieu & Van Horn, Flemington, N. J., LB **$123,395** sewer plant;

A. Cestone, 578 Rutherford Ave., Trenton, N. J., LB, **$76,707**, sewerage system, PEMBERTON, N. J. Boro, Boro Hall, Pemberton, N. J. A. J. Lanning, 1100 S. Broad St., Trenton, engr.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

M. J. Grove Lime Co., Lime Kiln, Md. LB **$81,585**. 3 span 40 ft., 50 ft., 40 ft. continuous steel I-beam bridge over Little Pipe Creek, State Rte. 71 Contr. CL 336-2-715, Carroll Co. Bids Aug. 18. CD 8/12.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

T. B. Gatch & Sons, Inc., 5928 Belair Rd., Baltimore, Md. LB **$343,371**. resurf. 3.251 mi. Snow Hill-Newark, Contr. WO 332-1-115, Worcester Co.;

E. Stewart Mitchell, Inc., 3301 Ridgewood Ave., Baltimore, Md. LB **$192,397** stone, **$172,916** slag. resurf., wid'n. 7.5 mi. State Rte. 406, Hudson Corner, Contr. S 197-115, Somerset Co.;

Nello L. Teer Co., Durham, N. C. LB **$194,448**. resurf. 8.99 mi. 7 sections of hy. Contr. S 196-1-115, Somerset Co.; LB **$369,450**. resurf., wid'n. 10.42 mi. U. S. Rte. 113 and State Rte. 528, near Jones and Ocean City, Contr. WO 333-3-115, Worcester Co. Bids Aug. 18. CD 7/28 and 8/13.

P. Reddington & Sons, 2 E. Lexington St., Baltimore 2, Md. LB **$67,190**. Hys. Contr. 1258, c. conc. paving, BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids Aug. 12.

Olivere Paving & Constr. Co., 100 W. 7 St., Wilmington, Del., LB, **$159,220**, Rattlesnake Run Interceptor, WILMINGTON, DEL. City, City Hall, Wilmington, Del. Bids Aug. 18. CD 8/13.

BUILDINGS

LOW BIDS AND CONTRACTS

E. W. Howell Co., 305 Deer Park Ave., Babylon, N. Y., CA **$913,365**, general contract, Contr. No. 1, two elementary SCHOOL addns., alterations, BAY SHORE, N. Y. Bd. Educ., Bay Shore, N. Y. Bids June 23. CD 6/11.

Saxon Woods Homes, c/o Karl Block, archt., 7 Landsdown Ave., Merrick, N. Y. Owner Builds. **$900,000**. 75 HOUSES on tract on Carmen Rd., FARMINGDALE, N. Y.

▲ **Duck Pond Road Estates,** c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds, **$3,500,000**, 140 HOUSES on tract on Duck Pond Rd., Viola Drive, GLEN COVE, N. Y.

▲ **Jonathan Homes,** c/o Oscar I. Silverstone, archt., 153 Pierrepont St., Brooklyn 2, N. Y. Owner Builds **$1,-650,000**, 110 HOUSES on tract at Liberty Ave. and Old Country Rd., HICKSVILLE, N. Y.

▲ **Overton Homes, Inc.,** c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$1,000,000**, 85 HOUSES on tract on Greenlawn Section, HUNTINGTON, N. Y.

▲ **Cameo Estates Homes,** c/o John J. Kalber, archt., 41 Prime St., Huntington, N. Y. Owner Builds, **$1,-000,000**, 106 HOUSES on tract on Melville Rd. and Leeds St., HUNTINGTON, N. Y.

▲ **Albarry Constr. Corp.,** 119 W. 57 St., New York 19, N. Y., LB, **$1,987,711**, HIGH SCHOOL and parking area sewage disposal sys., equip., MASSAPEQUA, N. Y. Bd. Educ., Union Free School Dist. 23, Town of Oyster Bay, Massapequa, N. Y. Bids Aug. 13. CD 7/30.

▲ **Birchwood Homes,** c/o Stanley Kelin, 89-31 161 St., Jamaica, N. Y. Owner Builds. **$2,500,000**, 150 HOUSES on 35-acre tract on Marcius Ave. between Hillside Ave. and Jericho Turnpike, NEW HYDE PARK, N. Y.

▲ **P. Kretzer & Son, Inc.,** 32-15 Lawrence St., Flushing, N. Y. CA Est. **$1,000,000**. 1 story, WAREHOUSE and OFFICE, Leggett Ave. east of Bruckner Blvd., NEW YORK, N. Y. Provident Produce Warehouse Co., Grand Central Terminal Bldg., New York 17, N. Y. Siegel & Green, 1841 Broadway, New York 23, N. Y., archts.

Gilbert Olsen Co., Inc., 9 Long Beach Rd., Rockville Center, N. Y. CA **$565,503**. Elementary SCHOOL (K-6), UNIONDALE, N. Y. Bd. Educ., Union Free School Dist. 2, V. T. McDermott, Uniondale, N. Y. Bids Aug. 4. CD 7/30.

Newport Terrace, Inc., c/o John W. Burton & Assoc., archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner

(Continued on page 88)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	**Latin America**
Sewers, Waste Disposal	**Public Buildings**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

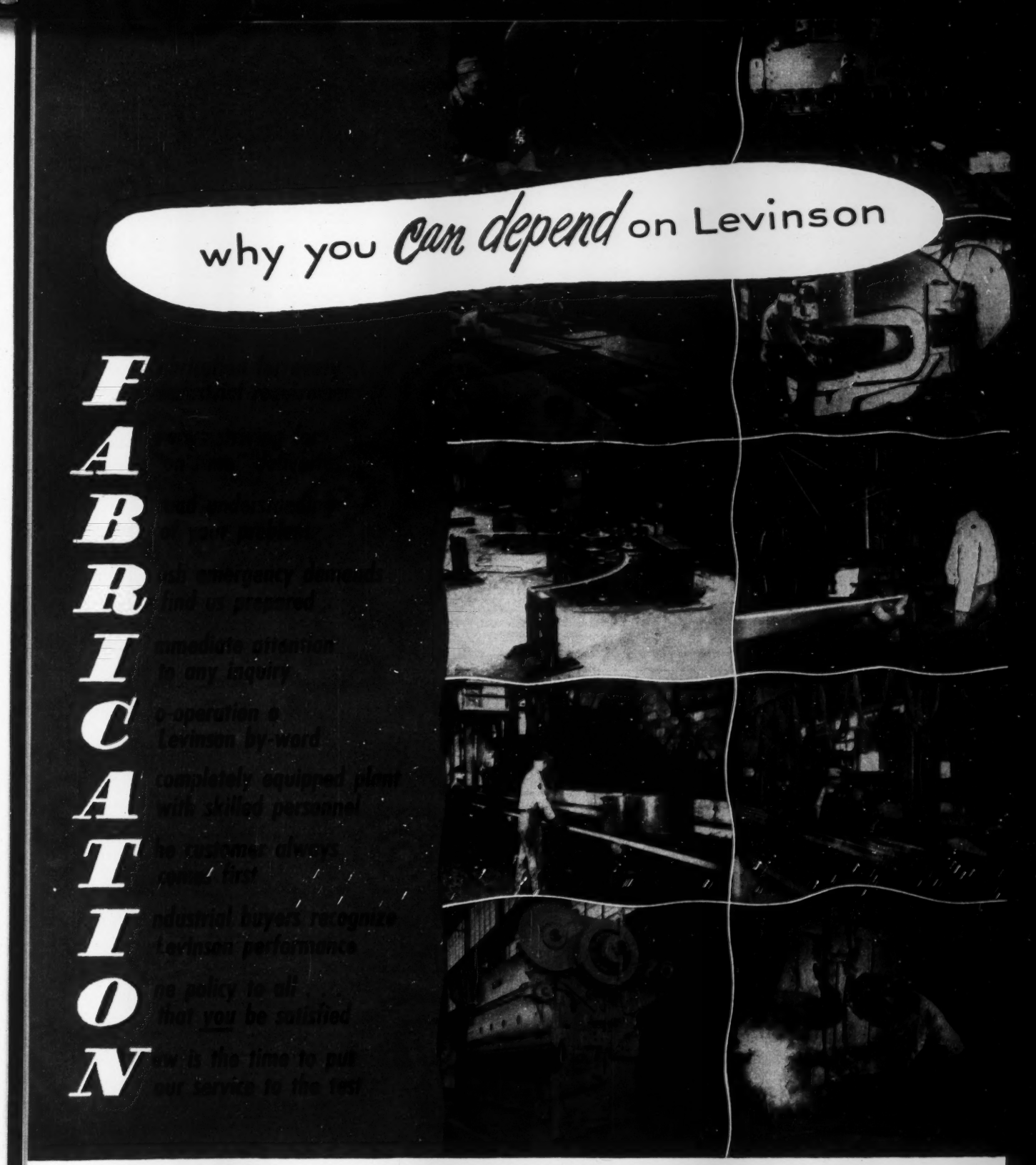
LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
B.A.	**Bids Asked**
ENR	**Engineering News-Record**
CD	**Engineering News-Record Construction Daily**



The **Levinson** STEEL COMPANY

20TH & WHARTON STS., PITTSBURGH 3, PA.

Fabricators of Steel for Industry

(Continued from page 86)

Builds. $712,000, 63 HOUSES on tract bounded by 24 Ave., Murray St., 25 Drive and 154 St., WHITESTONE, N. Y.

▲ **Valentine Gardens Apartments,** c/o Kavy & Kavovitt, archt., 44 Court St., Brooklyn 2, N. Y. Owner Builds. **$2,500,000** co-operative APARTMENT for 305 families 4-acre tract at Valentine Lane and Riverdale Ave., YONKERS, N. Y.

Peter A. Camilli & Sons, 42 Wheeler Ave., Pleasantville, N. Y., CA, **$423,000,** general contract elementary SCHOOL and SCHOOL addn., YORKTOWN, HEIGHTS, N. Y. Bd. Educ., Yorktown Central School Dist., 2, Yorktown Heights, N. Y. Bids Aug. 10. CD 7/2.

Lynn Homes, c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J. Owner Builds. **$450,000,** 25 HOUSES on tract at Edgebrook and Pennington Rds., NEW BRUNSWICK, N. J.

▲ **Orchard Hills Estates,** c/o Rudolph Novak, archt., 713 Main Ave., Clifton, N. J. Owner Builds. **$1,750,000,** 118 HOUSES on 42-acre site on Paramus Rd., PARAMUS, N. J.

▲ **M. L. Haldeman & Son,** 103 W Chocolate Ave., Hershey, Pa., LB, **$1,082,374,** Junior-Senior High SCHOOL for Susquenite Joint School Dist., DUNCANNON R. D. 2, PA. State Public School Building Auth., 101 S. 25 St., Harrisburg, Pa. Bids Aug. 20. CD 7/22.

▲ **Standard Constr. Co., Inc.,** 1010 Vermont Ave. N. W., Wash., D. C. CA **$7,567,471.** Fayette Street HOUSING, 23 bldgs., 16 acre plot area, 7 elevated apartment bldg., 805 units, Lafayette Courts, BALTIMORE, MD. Baltimore Housing Auth., 709 E. Eager St., Baltimore, Md. CD 6/9, under LB.

Dominion Contractors, Inc., 10 W. 23 St., Baltimore, Md. LB **$764,400,** est. $750,000. Campfield Elementary SCHOOL, Pikesville, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. Bids Aug. 19. CD 8/12.

▲ **Dominion Contractors, Inc.,** 10 W. 23 St., Baltimore, Md. LB **$1,288,600.** 1 story, brick Edgewood Junior Senior High SCHOOL, Edgewood, BEL AIR, MD. Harford Co., Bd. Educ., Bel Air, Md. Bids Aug. 18. CD 7/31.

▲ **Mullan Contg. Co.,** 3945 Greenmount Ave., Baltimore, Md. CA **$2,647,978.** 2 and 3 story, brick, concrete steel, block Kenwood High SCHOOL, Stemmers Run, Middle River, TOWSON, MD. Baltimore Co., Bd. Educ., Aigburth Rd., Towson, Md. CD 7/27, under LB.

Southern Engineering Corp., 1005 Bonifant St., Silver Spring, Md. CA Est. **$660,000.** 60 HOMES in Wheaton Hills (Sects. 5, 6, 7, 8, 9 and 10,) WHEATON, MD. Wheaton Hills Development Co., 1005 Bonifant St., Silver Spring, Md. Leon Brown, 15 and Vermont Aves. N. W., Wash., D. C., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **S. C., Charleston**—FENCE—B.A. 9/15—Dist. P. Wks. Office, Bldg. No. 12, U. S. Naval Base, Charleston, new perimeter fence U. S. Naval Minecraft Base, Spec. 39445. Plans deposit $10. CD 7/15/49.

† **Fla., Jacksonville**—PIER—B.A. 9/16—Dist. P. Wks. Office, Bldg. No. 12, U. S. Naval Base, Charleston, S. C., repairing Pier, U. S. Naval Reserve Training Center Spec. 37924 (SF). Plans deposit $10.

Ala., Mobile—B.A. 9/17—City, City Hall, sewage treatment plant for southwest area of city, Over $750,000. J. B. Converse & Co., First Federal Savings Bldg., Mobile, engrs. CD 4/16/52.

† **Fla., Jacksonville**—CRASH FACILITIES—B.A. 9/17—Dist. P. Wks. Office, Bldg. 12, U. S. Naval Base, Charleston, S. C., crash facilities Bldg., U. S. Naval Air Station. Cecil Field, Spec. 37033. Plans deposit $15. CD 12/3/51.

† **Florida**—B.A. About 9/22—U. S. Eng., P. O. Box 4970, Jacksonville, rubble mound North Jetty and South Jetty Extension, Canaveral Harbor, CIVENG-08-123-54-7. CD 6/9/44.

† **Florida**—B.A. About 9/29—U. S. Eng., P. O. Box 4970, Jacksonville, constr. Pumping Station No. 9, west of Ft. Lauderdale, Central and Southern Florida Flood Control Project, CIVENG-08-123-54-6. CD 11/24/43.

† **Tennessee**—B.A. 10/15—U. S. Eng., 303 Federal Office Bldg., Nashville, Zone 1, constr. 100,000 kw. Old Hickory Hydroelectric Power Plant, Cumberland River, Davidson Co., Serial No. CIVENG-40-058-54-6. CD 3/16, under LB.

BIDS ASKED—BUILDINGS

Va., Norfolk—SCHOOL—B.A. 9/9—Norfolk School Bd., Bank and Charlotte Sts., 1 story, masonry S. C. Armstrong Elementary School, $600,000. King & Wells, 811 W. 21 St., archts. CD 7/23/52.

Fla., Marianna—DORMITORY—B.A. 9/14—Florida State Imprvt. Comn., Caldwell Bldg., Tallahassee, dormitory at Industrial School for Boys, $404,000. CD 7/30.

▲ **Ala., Gadsden**—HOSPITAL—B.A. 9/15—District 4, Alabama State TB Sanitorium Bd., Gadsden, Tuberculosis Hospital, $1,200,000. Plans deposit $50. Extended date. Chas. H. McCauley, Jackson Bldg., Birmingham, archt. CD 6/16.

Ga., Camilla—SCHOOL—B.A. 9/15—Mitchell Co. Bd. Educ., Camilla, elementary and high school, $500,000. Plans deposit $50. Albany Architects & Engineers, P. O. Box 1778, Albany, archts. CD 8/28/52.

▲ **Tenn., Memphis**—HOSPITAL—B.A. 9/15—City, City Hall, negro teaching hospital, $2,286,000. Eason, Anthony, McKinnie & Cox, Sterick Bldg., archts. CD 5/24/51.

Ga., Milledgeville—SCIENCE—B.A. 9/22—Bd. Regents, University System of Georgia, 20 Ivy St. S. E., Atlanta, science bldg. at Georgia State College for Women. $500,000. Plans deposit $50. W. Elliott Dunwody Jr., First National Bank Bldg., Macon, archt. CD 11/22/46.

Ala., Oneonta—COURT HOUSE—B.A. 9/28—Comrs. Blount Co., Court House, court house, $425,000. Plans deposit $20. Martin J. Lide, Brown-Marx Bldg., Birmingham, archt. CD 1/26.

Ala., Birmingham—SCHOOLS—B.A. 9/22—Jefferson Co. Bd. Educ., 716 N. 21 St., (1) Oak Grove High School, $300,000, (2) Leeds High School, $300,000. Van Keuren, Davis & Co., 3004 7 Ave. S., Ala., archts.

▲ **Fla., Jacksonville**—GENERATING UNIT—B.A. 10/1—City, City Hall, 44,000 kw electric generating unit addn. at Southside Generating Station, $1,500,000. Reynolds, Smith & Hills, 227 Park St., engrs. CD 11/11.

Fla., Pensacola—AUDITORIUM—B.A. 10/1—City, City Hall, municipal auditorium, $750,000. Plans deposit $50. Extended date.

Tenn., Memphis — ADMINISTRATION-POSTGRADUATE BLDG.—B.A. 12/1—University of Tennessee, Knoxville, administration-postgraduate bldg. at University of Tenn. Medical Unit. $750,000. Furbringer & Ehrman, Union Planters Bank Bldg., archts. CD 2/25.

SOON LETS CONTRACT—BUILDINGS

La., New Orleans—MOTHER HOUSE and NOVITIATE—Sisters of the Holy Family, c/o Diboll-Kessels & Assoc., archts., 637 Pere Antoine Court, soon lets contract mother's house and novitiate, $600,000. CD 7/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—State Hy. Dpt., 1221 E. Broad St., Richmond, rejected bids Aug. 4, Proj. 2103-07-08, grading, drainage, 100 ft. bridge 3.58 mi. Route 60, Clifton Forge, Alleghany Co. CD 8/14, under LB.

J. O. & C. M. Stuart, 3121 South St. N. W., Wash., D. C., LB, **$69,660,** site preparation for Williamsburg Junior High School, ARLINGTON, VA. Arlington County School Bd., 1426 N. Quincy St., Arlington, Va. Bids Aug. 13. CD 8/7.

City, City Hall, Norfolk, Va., rejected bids July 30, semi-permanent grandstand addn. to Forman Field, NORFOLK, VA. LB, **$132,795.** CD 8/7, under LB.

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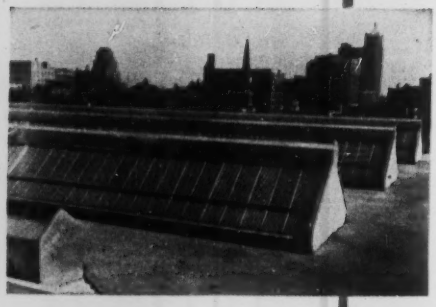

When you specify Original PENNSYLVANIA CORRUGATED WIRE GLASS, you build in vital benefits that will see your building through years of function, handsomeness and low-cost maintenance.

- You build in EFFICIENT LIGHTING . . softly diffused daylight in either white or heat absorbing actinic glass, eliminating harsh shadows, glare
- You build in LOW MAINTENANCE . . . a skylight with nothing to corrode, nothing to replace, nothing to re-paint
- You build in STRUCTURAL STRENGTH . . . heavy, corrugated glass, with wire encased, standing firm under the most punishing machinery vibrations

Original PENNSYLVANIA CORRUGATED WIRE GLASS Construction is a complete unit of glass and sheet metal parts. Standard width sheets measure 27¾" Installation is made without supplementary frames—Corrugated Wire Glass is applied directly on wood, steel or concrete.

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PENNSYLVANIA WIRE GLASS COMPANY

1612 MARKET ST. PHILA. 3, PA.

Representatives in Principal Cities

† **Regent Contg. Co.,** 1122 19 St. N. W., Wash., D. C., LB, **$270,000,** 10-bed INFIRMARY, Naval Air Station, NOY 75695, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Aug. 18. CD 7/30.

A. G. Pinkston & Co., 1805 County St., Portsmouth, Va., CA, **$220,994** Sects. 4, 5 and 6, water and sewer facilities, WASHINGTON, N. C. Town, Washington, N. C. Bids Aug. 7. CD 7/30.

▲† **Diamond Constr. Co.,** 4725 Shore Dr., Norfolk, Va. CA **$7,884,000.** ammunition loading piers, etc., U. S. Army Ammunition Loading Terminal, Sunny Point, ENG-31-075-53-21, WILMINGTON, N. C. U. S. Eng., 308 Custom House, Wilmington, N. C. CD 8/18, under LB.

▲ † **Boyle Constr. Co.,** P. O. Box 471, Sumter, S. C. CA **$1,832,282.** maintenance hangar, Donaldson Air Force Base, Inv. 38-081-54-1, GREENVILLE, S. C. U. S. Eng., Custom House, Charleston, S. C. CD 8/25, under LB.

Fiske-Carter Constr. Co., P.O. Box 480, Greenville, S. C., CA, **$453,350,** water treatment plant, GAINESVILLE, GA. City, City Hall, Gainesville, Ga. Bids Aug. 17. CD 7/27.

FLORIDA—State Road Dpt., Tallahassee,

Cone Bros. Contg. Co., Caeser and Cumberland Aves., Tampa, Fla., CA, **$533,512,** grading, stab., paving 2 bridges, small drainage structures, etc. Rd. 60, Adamo Dr. FAP F-033-1 (7), Job 1011-203, Hillsborough Co. Bids June 30, awarded Aug. 18. CD 7/10, under LB.

Nichols Eng. & Constr. Co., 70 Pine St., New York, N. Y., LB **$424,320,** refuse incineration plant, FORT LAUDERDALE, FLA. City, City Hall, Fort Lauderdale, Fla. Bids Aug. 17. CD 7/24.

† **Wm. S. Smith Constr. Co.,** 2479 W. Edgewood Ave., Jacksonville, Fla., LB, **$832,959,** disassembly hangar and cleaning bldg. at Naval Air Station, JACKSONVILLE, FLA. District P. Wks. Office Dpt. Navy, Charleston, S. C. Bids Aug. 19. CD 7/29.

▲ **J. E. Milam Constr. Co.,** 8940 First Ave. S., Birmingham, Ala., LB **$1,485,300.** 60 mi. sanitary sewer lines, MOBILE, ALA. City, Mobile, Ala. Bids Aug. 19. CD 7/21.

▲ **Rust Engineering Co.,** Exchange Bldg., Birmingham, Ala. LB **$1,020,030.** water treatment plant, etc., CHALMETTE, LA. St. Bernard Parish Water Dist. 1, Chalmette, La. Bids Aug. 18. CD 7/22.

W. H. Patterson & Co., P.O. Box 2229, Baton Rouge, La. CA **$407,000.** concrete street paving, CROWLEY, LA. City, Crowley, La. Bids Aug. 11.

Nordberg Mfg. Co., 1073 S. Chase Ave., Milwaukee, Wis. LB **$487,939.** furnish, install electric generating unit, RUSTON, LA. City, Ruston, La. Bids Aug. 18.

▲ **H. C. Price Co.,** P.O. Box 1111, Bartlesville, Okla. CA Est. **$3,000,000.** 355 mi. natural gas line from Kinkade, Tenn. to Kenova, W. Va., TENNESSEE and WEST VIRGINIA. Gulf Interstate Gas Co., c/o Panhandle Eastern Pipeline Co., 120 Broadway, New York, N. Y. CD 3/27/52, under Texas.

Wright Contg. Co., 502 Cooledge Ave., Columbus, Ga. LB **$983,367.** North Chattanooga and Tannery Flats Interceptor Sewers, CHATTANOOGA, TENN. City, City Hall, Chattanooga, Tenn. Bids Aug. 18. CD 7/15.

BUILDINGS

LOW BIDS AND CONTRACTS

Randolph Rouse, 2030 Belmont Rd. N. W., Wash., D. C., Owner Builds, Approx. **$650,000,** 50 RESIDENCES, ARLINGTON, VA.

Quantico Development Co., c/o Waite Lumber Co., P. O. Box 388, Fredericksburg, Va., Owner Builds, **$800,000.** 100 RESIDENCES, DUMFRIES, VA.

Howard Shockey & Son, Winchester, Va., CA, **$100,000** 1 story, masonry mfg. PLANT addn., WINCHESTER, VA. O'Sullivan Rubber Corp., Winchester, Va.

▲ **Thompson & Street Co.,** Pineville Rd., Charlotte, N. C. CA, **$8,653,000.** 2 state OFFICE BLDGS., ATLANTA, GA. State, State Capitol, Atlanta, Ga. Bids Aug. 19. CD 8/21, under LB.

A. B. Newton Co., Vidalia, Ga., LB, **$675,650,** Negro Elementary High SCHOOL, LINCOLNTON, GA. Lincoln Co. Bd. Educ., Lincolnton, Ga. Bids Aug. 20. CD 7/31.

Thompson-Polizzi Constr. Co., 300 Granello Ave., Coral Gables, Fla., CA, **$394,800,** Flagami Elementary SCHOOL, MIAMI, FLA. Da de Co. Bd. P. Instruction, 275 N. W. 2 St., Miami, Fla. Bids Aug. 5. CD 8/23.

King Constr. Co., 1776 Purdy Ave., Miami, Fla., CA, **$425,000** HOTEL, MIAMI BEACH, FLA. Jacob Solomon, c/o contractor.

Butler & Oenbrink, 207 Royal Palm Way, Palm Beach, Fla., CA, **$520,000** CLUBHOUSE addn. and swimming pool, PALM BEACH, FLA. Palm Beach County Club, c/o contractor.

Arnold Constr. Co., 7 Murray Bldg., Palm Beach, Fla., LB, **$832,227,** BANK, WEST PALM BEACH, FLA. Atlantic National Bank, 302 Clematis St., West Palm Beach, Fla. Bids Aug. 14. CD 7/8.

Paul Smith Constr. Co., P. O. Box 1912, Tampa, Fla., CA, **$500,000,** can mfg. PLANT, WINTER GARDEN, FLA. Continental Can Co., Auburndale, Fla.

▲ **Daniel Constr. Co.,** P. O. Box 1511, Birmingham, Ala. CA, **$1,047,972,** BANK addn., BIRMINGHAM, ALA. First National Bank, c/o Warren, Knight & Davis, archts., Protective Life Bldg., Birmingham, Ala. Bids July 30. CD 8/11, under LB.

Meisner & Craig and Lacoste Constr. Co., P. O. Box 824, Gulfport, Miss. LB **$530,500.** Mary L. Michael Junior High SCHOOL, BILOXI, MISS. Biloxi Municipal Separate School Dist., Biloxi, Miss. Bids Aug. 12. CD 7/14.

▲ **M. T. Reed Constr. Co.,** P. O. Box 1066, Jackson, Miss. CA **$1,479,086.** Wilson Drive and Robinson Road High SCHOOLS, JACKSON, MISS. Jackson Municipal Separate School Dist., 256 E. Griffith St., Jackson, Miss. CD 8/11, under LB.

R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, La. LB **$680,000.** Industrial Canal Elementary SCHOOL for Negroes, NEW ORLEANS, LA. Orleans Parish School Bd., 703 Carondelet St., New Orleans, La. Bids Aug. 14. CD 7/29.

▲ † **R. F. Ball Constr. Co., Inc.,** Builders Exchange, Transit Tower Bldg., San Antonio, Tex. CA **$1,037,237.** FOUNDRY, CLEANING BLDG., rein.-con. fdns. for equip., Michoud Ordnance Plant, NEW ORLEANS, LA. U. S. Eng., P. O. Box 1229, Galveston, Tex. CD 8/11, under LB.

F. T. Thayer Constr. Co., 170 Neil St., Memphis, Tenn. CA **$502,540.** White Station High SCHOOL addn., MEMPHIS, TENN. City, Bd. Educ., 317 Poplar St., Memphis, Tenn. CD 8/12.

Wilkinson & Snowden, Inc., Commerce Title Bldg., Memphis, Tenn. Owner Builds. Est. **$850,000.** 100 RESIDENCES, MEMPHIS, TENN.

Chandler & Chandler, Porter Bldg., Memphis, Tenn. Owner Builds. **$750,000.** 82 RESIDENCES, MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ill., Chicago**—B.A. 9/10—City, City Hall, bridge on Congress Expressway or S. Wacker Dr. and S. Franklin St. $1,400,000. CD 7/17/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 5

V. N. Holderman & Sons, Inc., 890 Oakland Park, Columbus, O., CA, **$10,253,316,** bridges, culverts, etc., 14 mi. contracts 56, 57, 58, 59, Fulton and Williams Counties. Bids Aug. 19. CD 7/17.

▲ **OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15,

Lombardo Bros. Constr. Co., 3600 Ridge St., Cleveland, O., CA, **$3,625,160.** Contract C-24, bridges, culverts, etc., 41.1 mi. Lorain Co.;

Ralph Myers Contg. Corp., Salem, Ind., CA, **$7,403,328** Contracts C-25 and C 26, bridges, culverts, etc. 8.5 mi. Lorain Co.;

A. J. Baltes Inc., Norwalk, O., CA, **$3,273,679,** Contract C 27, bridges, culverts, etc. 4.9 mi. Erie Co. Bids August 12. Grand total $14,302,167. CD 8/21, under LB.

▲ **Maxon Constr. Co.,** 131 N. Ludlow St., Dayton, O. LB **$1,044,629,** est. $1,209,500. Patterson-Riverside Bridge and north approach approx. 850 ft. 44 ft. wide, concrete pavement with median strip, curb, sidewalks, bridge of continuous steel girders with rein.-con. deck and substructure and cantilevered bracket sidewalk, two 22 ft. roadways, with two 7 ft. sidewalks, 4 ft. median strip, DAYTON, O. City, Dpt. Service & Buildings, 500 Municipal Bldg., Dayton 2, O. Bids Aug. 20. CD 7/21.

▲ **W. B. Gibson Co.,** Warren, O. CA **$1,287,124.** Packard Music HALL in Packard Park, WARREN, O. City, Warren, O. Awarded Aug. 21. CD 1/23/50.

ILLINOIS—State Div. Hys., Springfield,
rejected bids Aug. 7, furnishing structural steel for grade separation Western Ave. in Chicago over Congress St. Expressway, F.A. 131, Cook Co., LB, **$153,782;** widening 2 bridges, 1 culvert extension Ill. Rte. 37, Williamson Co., LB, **$102,914.** CD 8/11, under LB.

▲ **ILLINOIS**—State Div. Hys., Springfield,
rejected bids Aug. 7, 5.33 mi. Ill. Route 43, Randolph Co., LB, **$99,631;** 0.54 mi. and 6.45 mi., 1-beam superstructure for existing bridge, all U.S. Route 460, St. Clair Co., LB, **$421,566;** 10.67 mi. U.S. Rte. 30, Will, Kendall and Kane Counties, LB, **$320,895;** 1.98 mi. F.A. 160, Clay Co., LB, **$267,284.** CD 8/11, under LB.

ILLINOIS—State Div. Hys., Springfield,
M. Hoeffken Co. & Hoeffken Bros. Inc., 22 W "B" St., Belleville, Ill., CA, **$551,085,** c. conc. base course wid'ng 5.24 mi. Ill. 161, St. Clair Co. Bids Aug. 7, awarded Aug. 19. CD 8/11, under LB.

▲ **Santucci Constr. Co.,** 5025 Church St., Skokie, Ill. LB, **$14,800,000.** three sections of tunnel; Sect. A, four shafts, four lengths of tunnel in rock and one length of tunnel in clay, etc.; Sect. B, work shaft, two lengths of tunnel in rock, etc.; Sect. C, two shafts three lengths of tunnel in rock, one length of tunnel in clay, by-pass structure, etc., connecting Central District Filtration Plant to Wilson Ave. Station, CHICAGO, ILL. Dpt. Purchases, Contracts & Supplies, City Hall, Chicago 2, Ill. Bids Aug. 19. CD 8/7.

Standard Paving Co., 30 N. La Salle St., Chicago 2, Ill., CA, **$751,907,** outerdrive extension north from Foster to Bryn Mawr Aves., not incl. bridge and Bryn Mawr Ave., CHICAGO, ILL. Chicago Park District, 425 E. 14 St., Chicago, Zone 5, Ill. Bids July 28, awarded Aug. 13. CD 8/4, under LB.

J. M. Corbett Co., 2501 Salt St., Chicago, Ill., CA, **$959,085,** paving, draining, retaining wall curbs and gutters, South Shore Drive from 31 to 39 Sts., CHICAGO, ILL. Chicago Park District, 425 E. 14 St., Chicago 5, Ill. Awarded Aug. 13. CD 8/12, under LB.

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WISCONSIN—State Hy. Comn., Madison,
Wausau Constr. Co., Wausau, Wis., LB, **$89,567**, Contract 1, structure and approaches, Rib Falls Bridge, S 107 (6), C. T. Hy. "U" Marathon Co. Bids Aug. 18. CD 7/31.

WISCONSIN—State Hy. Comn., Madison,
Norbert Kalscheur Co., Sauk City, Wis., LB, **$131,771**, Contracts 1 and 2, grading 3.144 mi. Projs. S 0248 (1) and S 0447 (2), Jefferson Co.;
Rock Road Constr. Co., 5711 Winnequah Rd., Madison, Wis., LB, **$75,663**, Contract 1, aggregate bit. 4.701 mi. Proj. S 0461 (1), Walworth Co.;
Volck Constr. Co., Rice Lake, Wis., LB, **$92,850**, Contract 3, ballast, base course, 4.049 mi. Proj. F 03-1 (36), Fond du Lac Co. Bids Aug. 18. CD 7/31.

L. G. Arnold, Inc., 201½ N. Dewey St., Eau Claire, Wis. CA, **$895,690**, general contract, water treatment plant, EAU CLAIRE, WIS. City, City Hall, Eau Claire, Wis. Bids July 7. CD 7/23, under LB.

S. W. Medler, Inc., 3205 N. 54 St., Milwaukee 10, Wis., CA, **$84,849**, sewers in N. 68 St.;
G. E. T. Constr. Co., 108 W. Wells St., Milwaukee 3, Wis., CA, **$72,785**, sewers in W. Hopkins St., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Aug. 12, awarded Aug. 14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **B & J Jacobs Co., Inc.**, 1729 John St., Cincinnati, O. CA **$869,087**. supply and exhaust ducts;
Corn States Metal Fabricators, Inc., 2026 Cottage Grove St., Des Moines, Ia. CA **$343,280**. supply and exhaust ducts;
A. H. Lumm Co., 2512 Albion St., Toledo, O. CA **$244,900**, supply and exhaust ducts;
Ingersoll-Rand Co., 224 E. 9 St., Cincinnati, O. CA **$331,000**. air compressors and auxiliary equip. for process facilities;
Westinghouse Electric Corp., 207 W. 3 St., Cincinnati, O. CA **$200,036**. plant control facility equip.;
Joseph T. Ryerson & Son, Inc., 3475 Spring Grove, Cincinnati, O. CA **$174,900**. reinforcing steel, cell floor and equip. foundations;
Guy F. Atkinson Co., Cascade Bldg., Portland, Ore. CA **$95,263**. recirculating water pumps for Gaseous Diffusion PLANT (Subcontractors under Peter Kiewit Sons' Co., P.O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., 25, D. C., PIKETON AND WAKEFIELD, O. Grand total $2,258,466. CD 8/13/52, under CA.
Pigeon Hole Parking, Inc., Peyton Bldg., Spokane, Wash., CA, **$225,000**, Pigeon Hole Open-Deck PARKING FACILITY, W. Commerce St., YOUNGSTOWN, O. G. M. McKelvey Co., 210 W. Federal St., Youngstown, O.
Huber, Hunt & Nichols, 2450 S. Tibbs Ave., Indianapolis, Ind., LB, **$668,400**, general contract high school GYMNASIUM addn., 25 St. and Maple Ave., COLUMBUS, IND. Bd. School Trustees, High School Bldg., Columbus, Ind. Bids Aug. 14. CD 7/27.
J. and L. Realty Co., 801 Lemcke Bldg., Indianapolis, 5, Ind. Owner Builds. **$500,000** group of 40 HOMES, Ralston Heights, INDIANAPOLIS, IND.
Geo. Sollitt Constr. Co., 109 N. Dearborn St., Chicago, 2, Ill., CA, **$890,000**, HOSPITAL and HOME for AGED, MAYWOOD, ILL. Baptist Home & Hospital, 315 Pine St., Maywood, Ill. Bids July 20, awarded Aug. 17. CD 7/15.
Walker Constr. Co., 1701 S. Hastings Way, Eau Claire, Wis., LB, **$125,608**, general contract 1 story, bsmnt., 104x203 ft. WAREHOUSE and 46x10[illegible] ft. OFFICE, EAU CLAIRE, WIS. Eau Claire Book & Stationery Co., 320 S. Barstow St., Eau Claire, Wis. CD 6/24.
Kileen & Wille Constr. Co., 1402 Poplar Ave., Superior, Wis. LB **$690,960**. general contract HOSPITAL addn., MARQUETTE, MICH. St. Mary's Hospital, Fisher St., Marquette, Mich. Bids Aug. 11. CD 7/16.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Arkansas**—B.A. 9/16—U. S. Eng., 300 Broadway, Little Rock, Point Bar and Hilla Bend Pilot Channels, Arkansas River Watershed, Arkansas River, Multiple Purpose Plan, Serial No. CIVENG-03-050-54-5. CD 3/9/45.

Ia., Perry—B.A. 9/21—City, City Hall, water system imprvs. $45,000. H. R. Green Co., 417 1 Ave. S. E., Cedar Rapids, engr. CD 7/29, under LB.

† **Kansas**—B.A. 10/1—Bureau Reclamation, Dpt. Interior, Superior, Neb., earthwork, structures, Courtland Lateral System, Laterals 16.5 to 23.1 inclusive sublaterals and drains, Bostwick Division, Missouri River Basin Proj., south of Superior, Neb. in Jewell Co., Kan., Spec. DC 4021; adv ENR 8/27. CD 8/14.

BIDS ASKED—BUILDINGS

▲ **Tex., Dallas**—SCHOOL—B.A. 9/14—Dallas Independent School Dist., 3700 Ross St., school, Bickers, Holystone and Greenlief Sts. $1,250,000. Plans deposit $50. Clifford G. Lane, 410 Melba Bldg., archt.

N. D., Williston—CHURCH—B.A. 9/15—First Lutheran Church, Rev. C. B. Nervig, church, $600,000. Plans deposit $25, G. C. Peterson, 440 Endicott Bldg., St. Paul, Minn., archt. CD 4/7.

Tex., Hamshire—HIGH SCHOOL—B.A. 9/15—Hamshire New Holland Independent School Dist., c/o L. L. Taylor, supt. Schools, Hamshire, brick, concrete, high school and auditorium, concrete fdn. $500,000. Plans deposit $40. Emory S. White, 666 M & M Bldg., Houston, archt. **Howard & Johnson**, 4926 Travis St., and Walter P. Moore, 2 Pinedale St., Houston, engrs.

▲ **Tex., Fort Worth**—STUDENT UNION—B.A. 9/27—Texas Christian University, T.C.U. Campus, Fort Worth 110x240 ft. frame, brick, stone exterior student union bldg., acoustic tile ceilings, rein. con. fdn., air conditioning, etc. $1,000,000. Extended date. Preston M. Geren, 1607 Fort Worth Natl. Bank Bldg., archt. CD 8/19.

SOON LETS CONTRACT—BUILDINGS

Tex., Dallas—Roman Catholic Diocese of Dallas, c/o George L. Dahl, archt., 2101 N. St. Paul St., soon lets contract, 2 story St. Joseph's Home for the Aged. $700,000. CD 8/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.**, 17-9 Jackson St., Omaha 2, Neb. rejected bids July 29, constr. facilities for ILAS and CRD-6, Duluth Air Force Base, ENG-25-066-53-193, DULUTH, MINN. LB **$159,436**. CD 8/14, under LB.
Phelps-Drake Co., 1415 SE Eighth St., Minneapolis, Minn. CA **$139,900**. sewage treatment plant, MOUNTAIN IRON, MINN. Village, A. Fiola, clk., Mountain Iron, Minn. Bids Aug. 17. CD 8/5.
A. Olson Constr. Co., Waterloo, Ia., CA, **$537,088**. 11th Street Bridge, WATERLOO, IA. City, City Hall, Waterloo, Ia. Kirkham, Michael & Assoc., 1504 Dodge St., Omaha, Neb., engrs. Bids July 14.
NORTH DAKOTA—State Hy. Dpt., Bismarck,
Rue Constr. Co., Bismarck, N. D., CA **$624,014**, Yellowstone Bridge substructure 0.364 mi. Proj. No. S-58 (2), McKenzie Co. Bids Aug. 14. CD 7/29.
NORTH DAKOTA—State Hy. Dpt., Bismarck,
Swingen Constr. Co., 901 N. 6 St., Grand Forks, N. D. LB **$117,555**, structure, approaches and incid. 0.407 mi. Proj. No. S-422 (9), Mercer Co. Bids Aug. 14. CD 7/29.
NORTH DAKOTA—State Hy. Dpt., Bismarck,
W. H. Noel Co., Jamestown, N. D., CA **$150,784**. grav. 8.72 mi. Proj. No. SAP 397E. Dunn Co. Bids Aug. 14. CD 7/29.
† **Dubuque Boat & Boiler Co.**, Dubuque, Ia. LB **$52,379**. protective floating booms for Fort Randall Reservoir, Lake Andes, Inv. 25-066-54-25, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 18. CD 7/22.
† **Bureau Reclamation**, Dpt. Interior, Huron, S. D. rejected bids July 24; Sioux City Sub-station transmission division, Missouri River Basin Proj., Spec. DC 3981, SOUTH DAKOTA. 1B **$220,724**. Will readvertise. CD 8/19, under LB.
† **U. S. Eng.**, 1709 Jackson St., Omaha, Neb. cancelled bids to have been opened Aug. 18, storm sewer outfall ditch, Inv. 25-066-53-37, PIERRE, S. D. CD 8/5.
▲† **Peter Kiewit Sons' Co.**, 1611 N. Broadway, Oklahoma City, Okla. CA **$1,154,867**. strengthening runways, taxiways, constr. parking apron, Ardmore Air Force Base, ENG-34-066-53-1341, ARDMORE, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids July 30, awarded Aug. 21. CD 8/4, under LB.
Oklahoma Constr. Co., Brown Bldg., Muskogee, Okla. CA **$568,471**. est. $600,000. grading, drainage, sidewalks, Fair Grounds, OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Awarded Aug. 18. CD 8/17, under LB.
▲ **Lone Star Gas Co.**, 1915 Wood St., Dallas, Tex. Own Forces. **$1,110,000**. 44 mi. 12 in. transmission gas line running from Red Springs gas field north to Lone Star Gas main line in Hopkins Co., Tyler, TEXAS. CD 8/13.
TEXAS—State Hy. Comn., Austin,
Cage Bros., 6959 N. San Pedro St., San Antonio, Tex. LB **$174,703**. wid'n. structures, base surf. 2.277 mi. Hy. ST 27, Proj. FI 405 (6) and F 405 (7), Kerr Co. Bids Aug. 19. CD 7/31.
▲ **TEXAS**—State Hy. Comn., Austin,
E. B. Darby & Co., P. O. Box 467, Pharr, Tex. LB **$121,840**. grading, structures, base surf. 10.456 mi. Hy. FM 890, Proj. S 1758 (1), Hidalgo Co.;
J. M. Dellinger, Inc., P. O. Box 4227, Corpus Christi, Tex. LB **$127,634**. grading, structures, base surf. 15.369 mi. Hy. FM 894 and 1945, Proj. S 1410 (3) and R 1208-2-1, San Paricio Co.;
John F. Buckner & Sons, P. O. Box 76, Cleburne, Tex. LB **$289,349**. wid'n., grading, structures, flexible base, 1 course surf. tr. 17.26 mi. Hy. US 287, Proj. F 485 (6) and (5), Houston Co.;
Bell, Braden, Barker & Gilvin, Inc., P. O. Box 2268, Amarillo, Tex. LB **$287,434**. grading, wid'n. structures, flexible base, ACP 13.599 mi. Hy. US 84, Proj. F 671 (4), Scurry Co.;
Cage Bros., 6959 N. San Pedro St., San Antonio, Tex. LB **$200,732**. grading, structures 27.958 mi. Hy. FM 133 and SH 202, Duval Co.; LB **$66,112**, grading, structures, base, surf. 8.266 mi. Hy. FM 1916, 1917 and 1918, Proj. R 963-21-1, RV 37-15-1 and R 1813-1-1, Dimmit Co.;
Hugh Millan, P. O. Box 1227, El Paso, Tex. LB **$112,877**, grading, base, surf. 8.906 mi. Hy. FM 258, Proj. C 2-14-4, El Paso Co.;
E. W. Hable & Sons, Corsicana, Tex. LB **$137,508**, grading, structures, base, surf. 8.937 mi. Hy. FM 1954, Archer Co.;
M. E. Ruby, San Marcos, Tex. LB **$78,909**. grading, structures, flexible base, 1 course surf. ACP 10.64 mi. Hy. SH 346, Proj. S 58 (3), Atascosa Co. Bids Aug. 19. CD 7/30, 7/28 and 7/23.
▲ **TEXAS**—State Hy. Comm., Austin,
W. L. Barnes, 3102 Perry Lane, Austin, Tex. LB **$80,434**. grading, structures, base surf. 5.83 mi. Hy. FM 1476, Proj. S 1896 (1), Comanche Co.;
W. R. Boyd Inc., San Augustine, Tex. LB **$184,388**. flexible base, 2 course surf. tr. 3.181 mi. Hy. SH 21, Proj. F 198 (2) Nacogdoches Co.;
B. G. Brown & J. Andy Print, 1516 S. Madison St., San Angelo, Tex. LB **$378,438**. flexible base, b.-conc. 4.596 mi. Hy. US 80, Proj. FI 444 (31), Nolan Co.;
Cage Bros., 6956 N. San Pedro St., San Antonio, Tex. LB **$313,641**. grading, structures 29.666 mi. Hy. FM 133, Proj. S 1490 (2) and (3), Webb Co.; LB **$72,408**. fdn. course, 2 course tr. 9.78 mi. Hy. FM 156, Proj. C 718-1-12, Denton Co.;
Collins Constr. Co. of Texas, P.O. Box 1192, Austin, Tex. LB **$253,498**. grading, structures 10.053 mi. Hy. SH 16, Proj. S 1517 (2), Comanche Co.;
W. S. Crawford Co., 5350 Montrose Dr., Dallas, Tex. LB **$81,935**. grading, structures, base surf. 1.619 mi. Hy. FM 667, Proj. C 747-1-7, Ellis Co.;
Gulf Bitulithic Co. and F. M. Reeves & Sons of Austin, P.O. Box 2572, Houston, Tex. LB **$757,467**. grading, storm sewers, stabilized base, c.c. conc. 0.566 mi. Hy. US 75, Proj. U.I. 32 (15), Harris Co.;
M. B. Killian, 4600 Broadway, San Antonio, Tex. LB **$211,208**. grading, structures, base surf. 1.551 mi. Hy. FM 78, Proj. C 25-10-16, Guadalupe Co.;
John T. Leslie, Bailey, Tex. LB **$60,796**. grading, structures, base, surf. 2.819 mi. Hy. FM 544, Proj. R 619-4-6, Collin Co.;
Ernest Loyd, P.O. Box 1120, Fort Worth, Tex. LB **$217,180**. grading, flexible base, 2 course surf. tr. 6.448 mi. Hy. SH 36, Proj. F 844 (5), F 757 (4) and F 844 (4), Eastland and Callahan Counties;
Holland Page, P.O. Box 1181, Austin, Tex. LB **$161,781**. grading, structures, base, surf. 10.123 mi. Hy. FM 1484, Proj. R 1417-1-3, Montgomery Co.; LB **$190,394**. addnl. flexible base, 2 course surf. tr. 16.967 mi. Hy. US 183, Proj. F 74 (5) 7 F 36 (9), Travis and Caldwell Counties;
Henry Stafford, P.O. Box 1047, Lubbock, Tex. LB **$112,033**. grading, structures, base surf. 14.612 mi. Hy. FM 1967, Proj. C 1868-1-1, Andrews Co.;
C. Hunter Strain, P.O. Box 1057, San Angelo, Tex. LB **$201,172**. hot mix b. conc. 15.595 mi. Hy. US 277 and 83, Proj. C 33-4-18, C 33-5-15 and C 157-5-15, Jones Co.;
Worth Constr. Co., P.O. Box 531, Fort Worth, Tex. LB **$131,108**. wid'n, c. conc. 0.837 mi. Hy. SH 164, Proj. C 413-1-5, McLennan Co. Bids Aug. 18. CD 7/30, 7/27 and 7/23.
TEXAS—State Hy. Comm., Austin,
John T. Leslie, Bailey, Tex. LB **$83,009**. White Rock Creek Bridge, approaches, 0.216 mi., Hy. ST 289, Proj. C 91-6-1, Dallas Co.;
Bell, Braden, Barker & Gilvin, Inc., P.O. Box 2268, Amarillo, Tex. LB **$157,772**. 0.674 mi. North Fork of Red River Bridge and approach, grade revision, flexible base, 1 course surf. tr. Hy. ST 273 and Proj. C 560-2-10 and C 795-1-6, Gray Co.;
Austin Bridge Co., P.O. Box 1590, Dallas, Tex. LB **$383,732**. Mill Creek Bridge relief opening and approach, grading, structures, flexible base, b. conc. 1.358 mi. Hy. ST 36, Proj. F 465 (3), Austin Co.;
T. W. Hansen, D. N. Anderson & James W. Dunn, P.O. Box 618, El Paso, Tex. LB **$107,209**. wid'n. structures 0.122 mi. Hy. US 80, Proj. F 439 (26), El Paso Co. Bids Aug. 18. CD 7/30 and 7/23.
Frank Butcher, 223 W. Magnolia Ave., San Antonio, Tex. LB **$61,301**. water sys. imprvs., GOLIAD, TEX. City, Goliad, Tex. Bids Aug. 13. CD 7/16.
† **U. S. Eng.**, 100 W. Vickery St., Fort Worth, Tex., cancelled bids to have been opened Aug. 21, runway, apron, taxiways, Tye Air Force Base, ENG-41-44-3-53-65, ABILENE, TEX.
Frank Butcher, 223 W. Magnolia Ave., San Antonio, Tex. LB **$66,141**. sanitary sewer lines, lift station, GOLIAD, TEX. City, Goliad, Tex. Bids Aug. 13. CD 7/16.
Howard Stich Plumbing & Utilities, 210 SW Military Dr., San Antonio, Tex. LB **$34,839**, est. $35,000. water sys., incl. approx. 23,000 lineal ft. 2- to 6-in. pipe, LACOSTE, TEX. Water Control & Imprvt. Dist. No. 1, LaCoste, Tex. Bids Aug. 17. CD 7/23.
City, Rockdale, Tex., rejected bids July 29, Job. No. 1 water mains, distr. lines, $75,000; Job No. 2, elevated steel water storage, $35,000, ROCKDALE, TEX. New bids Aug. 26. CD 8/5, under LB.
City, Rockdale, Tex., rejected bids July 29, Job. No. 3 sanitary sewer collection lines, $70,000; Job No. 4 sewage disposal unit, $65,000, ROCKDALE, TEX. New bids Aug. 26. CD 8/5, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Madsen Constr. Co., 4916 E. Sunnyslope Rd., Minneapolis, Minn. CA **$648,480**. general contract grade SCHOOL, BLOOMINGTON (P. O. MINNEAPOLIS), MINN. Bd. Educ., E. B. Chadwick, clk., 10025 Penn Ave. S., Bloomington, Minn. CD 8/12, under LB.
Steenberg Constr. Co., 1371 Selby Ave., St. Paul, Minn. CA **$859,600**. 4 story, ST. JOSEPH'S HALL STUDENT CENTER and LIBRARY, ST. PAUL, MINN. College of St. Catherine, 2004 Randolph Ave., St. Paul, Minn. CD 8/12, under LB.
Hoke Constr. Co., Stillwater, Okla. CA **$751,600**, Est. $750,000. Senior High SCHOOL, PONCA CITY, OKLA. Bd. Educ., Ponca City, Okla. Bids Aug. 5. CD 7/15.
Tulsa Rig & Reel Co., Philtower Bldg., Tulsa, Okla. LB **$872,800**. 368x220 ft. SHOP and OFFICE, 41 and Sheridan Sts., TULSA, OKLA. Seismograph Service Corp., Kennedy Bldg., Tulsa, Okla. W. W. Wolaver, 1851 E. 81 St., Tulsa, Okla., archt.
Texas Hy. Dpt., State Admin. Bldg., Austin, Tex., rejected bids Aug. 13, motor vehicle office, AUSTIN, TEX. LB **$772,400**, Will re-advertise. CD 8/19, under LB.
Reed & Yancey Investment Co., 2952 Little York St., Houston, Tex. Owner Builds. **$475,000**. SHOPPING CENTER unit, HOUSTON, TEX.

W. G. McMillan, 709 Avenue J, Lubbock, Tex., CA $785,000. 2 story, bsmnt., brick, stone exterior, plastered interior, concrete, steel frame DEPARTMENT STORE, air conditioning, etc.; CA $68,500, asph. type paving for parking zone and surrounding mercantile bldg., LUBBOCK, TEX. Dunlap's, c/o Retha Martin, 901 Broadway, Lubbock, Tex. CD 7/10, under LB.

Smith & Cooper, 1903 N. Grant St., Odessa, Tex. CA $250,000. general food STORAGE or WAREHOUSING, incl. refrigeration rooms, sales bldg., MIDLAND, TEX. El Paso Division of Safeway Stores, Inc., Midland, Tex. CD 7/23.

Quali-Cut Co., 1231 N. W. 36 St., San Antonio, Tex. Owner Builds. $355,000. Sect. 2, consisting of 50 DWELLINGS, SAN ANTONIO, TEX. CD 7/24.

W. W. Walton, 1904 Belvedere St., Tyler, Tex. CA $500,000. 5 story HOTEL addn., remodeling, TYLER, TEX. Blackstone Hotel, c/o Ralph Hitz, mgr., Tyler, Tex. Preston M. Geren, 1607 Fort Worth National Bank Bldg., Fort Worth, Tex., archt. CD 8/30.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wash., Everett**—LANDING SYSTEM—B.A. 9/21—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, instrument landing system, Paine Air Force Base, ENG-45-108-54-40. CD 2/3.

BIDS ASKED—BUILDINGS

† **Wash., Renton**—MODIFICATION—B.A. 9/21—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 126x258 ft., steel frame ordnance modification bdg. on wood pile and concrete footings and surf. 70,000 sq. ft. storage area, ENG-45-108-54-39.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Thorn & Marble,** 916 E. 64 St., Seattle 5, Wash. LB $1,172,817, est. $1,207,935, bulk storage facilities and hydrant refueling systems, Mountain Home Air Force Base, Inc. 54-1, MOUNTAIN HOME, IDAHO. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Aug. 20. CD 7/27.

WASHINGTON—State Hy. Comn., Olympia,

Kirkman & Strand, Seaview, Wash., LB, $62,137 reconstr. pier protections and sidewalks on Wishkah River Bridge 9 plus 433 and Hoquiam River Bridge 9 plus 432 Hy. 9, Grays Harbor Co. Bids Aug. 18. CD 8/5.

† **Western Steel Mfg. Co.,** 2601 Main St., Boise, Idaho, LB, $416,345, 224 trash-rack sections, 1 trash rack extension and 2 lifting beams for Chief Joseph Dam, Bridgeport, Inv. 53-85, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle, Wash. Bids Aug. 17. CD 6/23.

WASHINGTON—State Hy. Comn., Olympia,

Associated Sand & Gravel Co., 2508 Colby Ave., Everett, Wash., LB, $206,929, cement treated base, b. conc. paving 3.763 mi. Hy. 1, FI-001-4 (6), Snohomish Co.;

Thos. Scalzo Co., 3211 Airport Way, Seattle, Wash., LB, $151,843, clearing, draining, grading, rein.-con. girder bridge 1.784 mi. State Hy. No. 1, BFI-001-5 (2), Unit 1 and BFI-001-5 (3), Skagit Co. Bids Aug. 18. CD 8/5.

▲† **J. A. Jones Constr. Co., Cherf Bros., & Sandkay Constructors,** Box 938, Ephrata, Wash., CA $2,211,000. aircraft parking apron, warm-up pad and utilities, Larson Air Force Base, Inv. 53-63, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids July 30. CD 8/5, under LB.

† **Busboom & Rauh,** N. 601 Cedar St., Spokane, Wash., LB, $464,625, est. $448,823, Schedules A and B, two frame squadron operations and two frame squadron maintenance bldgs.,

Ruud Constr. Co., Peyton Bldg., Spokane, Wash., LB, $223,695, est. $217,060, Schedule C, one frame squadron operations and one squadron maintenance bldg., Fairchild Air Force Base, Inv. 54-14, SPOKANE, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Aug. 18. CD 7/22.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Guy F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif., LB $4,122,382. Imprvs in the North Approach to Golden Gate Bridge, incl. converting existing four-lane undivided hy. to a divided six-lane freeway from southern end of Richardson Bay Bridge to Northern Bridgehead of the Golden Gate Span, a distance 4 mi.., incl. 1,000 ft. tunnel east of present tunnel, two sidehill viaducts, an overpass, underpass and extension of the tunnel, Marin Co. Bids Aug. 19. CD 7/29.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

Mercer-Fraser Co. & Mercer-Fraser Gas Co. 2 and Commercial Sts., Eureka, Calif., LB, $213,765 surf. 3.4 mi. between Fields Landing and south city limits of Eureka, Humboldt Co.;

Oilfields Trucking Co., Box 751, Bakersfield, Calif., LB, $250,217, grading 7.2 mi. rein.-con. bridge near Corcoran, Kings Co.;

Madonna Constr. Co., P.O. Box 910, San Luis Obispo, Calif., LB, $97,452, grading, surf. 2.2 mi. Los Osos Rd., San Luis Obispo Co.;

Frederickson Bros., 1259 65 St., Emeryville, Calif., LB, $241,496, grading, surf. 5 mi. between Travis A. Force Base and Vacaville, Solano Co. Bids Aug. 12. CD 7/20.

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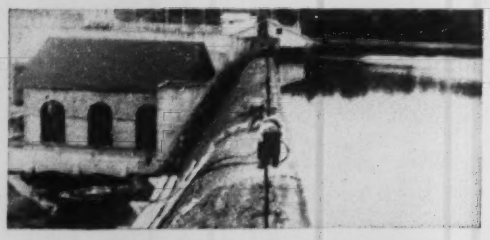

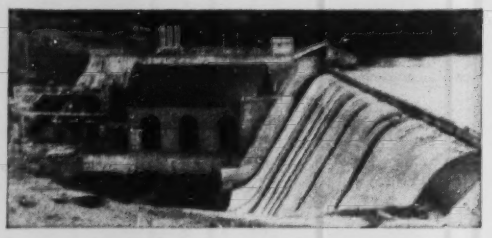

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The top photograph shows the spalled and eroded condition of the concrete when the Cement Gun Company crews arrived on the job. The surface was chipped back to sound concrete and reinforcing mesh applied. Then the entire downstream surface was blanketed with "GUNITE."

The bottom photograph shows the completed "GUNITE" surfacing of the dam.

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Charles L. Harney, Inc., 575 Berry St., San Francisco, Calif., LB, $175,800, site development work at San Francisco State College, SAN FRANCISCO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif.

† Nomellini Constr. Co., P.O. Box 1177, Stockton, Calif., LB, $417,768 armament and electronics bldg., Spec. 1757 A, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Aug. 14. CD 8/15.

BUILDINGS

LOW BIDS AND CONTRACTS

S. S. Mullen, Inc., 621 9 Ave. N., Seattle, Wash. CA, $164,532 40,000 sq. ft., rein.-con. WAREHOUSE, SEATTLE, WASH. Northern Pacific Ry. Co., 175 E. 5 St., St. Paul, Minn. United Warehouse Co., lessee. CD 8/13.

▲ Willamette View Manor Assn., Milwaukie, Ore., rejected bids Apr. 28, 7 story, concrete retirement HOME and four 6 story wings, MILWAUKIE, ORE. LB, $1,874,699. CD 5/22, under LB.

Louis Kowolowski, Box 26, Madras, Ore., CA, $308,966 HIGH SCHOOL, WESTFIR, ORE. Lane Co. School District No. 117, Westfir, Ore. Geo. Wolff, Pearson 4 Ave. Bldg., Portland, Ore., archt. Awarded Aug. 18.

▲ General Electric Co., 212 N. Vignes St., Los Angeles, Calif., CA $3,896,182. furnish and erect steam GENERATOR unit Valley Steam Plant, Sun Valley, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids July 13. CD 6/23.

▲ Pittsburg Unified School Dist., 250 School St., Pittsburg Calif., rejected bids, HIGH SCHOOL and GYMNASIUM addns., PITTSBURG, CALIF. LB $1,170,500. CD 8/11, under LB.

▲ Theo. G. Meyer & Sons, 200 Quint St., San Francisco, Calif., CA $1,952,766. 300 DWELLING units, site development, Proj. CAL 10-3, Easter Hill Village low-rent housing, RICHMOND, CALIF. Richmond City Housing Auth., 219 Commercial St., Richmond, Calif. Bids June 10, awarded Aug. 17. CD 6/16.

▲ M & K Corp., 200 Financial Center Bldg., San Francisco, Calif., LB $1,626,000. 6 story OFFICE, 801 Capitol Ave., SACRAMENTO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Aug. 18. CD 7/14.

† L. C. Anderson Co., 3040 Hancock St., San Diego, Calif., LB $860,700, addnl. TRAINING FACILITIES 2nd increment, Naval Training Center, NOY 74058, Spec. 35093, SAN DIEGO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Aug. 18. CD 7/21.

▲ Rapp Constr. Co., 705 Bennett Ave., Santa Rosa, Calif. CA $1,378,000. Herbert Slater Junior HIGH SCHOOL, SANTA ROSA, CALIF. Santa Rosa High School Dist., 211 Ridgeway Ave., Santa Rosa, Calif. Bids Aug. 6, awarded Aug. 12. CD 8/12, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Grande Riviere—HARBOR IMPRVS.—B.A. 9/9—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbour imprvs. (training works reconstr.) $90,000. Plans deposit $20. R. Blais, c/o owner, engr. CD 2/11.

Que., Sorel—RETAINING WALLS—B.A. 9/9—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., two steel sheet piling retaining walls, $136,500. Plans deposit $20. R. Blais, c/o owner, engr. CD 5/1/52.

SOON LETS CONTRACT—BUILDINGS

▲ Man., Winnipeg—EXCHANGE—B.A. 9/2—Manitoba Telephone System, 166 Portage Ave. East, soon lets contract 1 story, rein.-con., brick telephone exchange, friction pile fdn., West Kildonan suburb. $1,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

N. S. Pawliuk, 11244 50 St., Edmonton, Alta., CA, $113,113, storm and sanitary sewers, EDMONTON, ALTA. City, City Hall, Edmonton, Alta. Awarded Aug. 10. CD 10/29/51.

Borger Bros. Ltd., 2004 14 A. S.E., Calgary, Alta., CA, $84,500, 33,000 ft. pipe lines, sewage pound and sewage lift station, REDCLIFF, ALTA. Town, Town Hall, Redcliff, Alta. Haddin, Davis & Brown, 513 8 Ave. W., Calgary, Alta., engrs. Awarded Aug. 1.

▲ Marwell Constr. Co. Ltd., 1500 Georgia St., Vancouver, B. C., LB, $1,598,345. STADIUM to be used for British Empire Games, VANCOUVER, B. C. City, City Hall, Vancouver, B. C. Sharp & Thompson, Berwick Pratt, 1553 Robson St., Vancouver, B. C., archts. CD 5/13.

MANITOBA—Province of Manitoba, Parliament Bldgs., Winnipeg,

Commonwealth Constr. Co. Ltd., 300 Royal Bank Bldg., Winnipeg, Man., LB, $222,396, 2.66 mi. Trans-Canada Hy. in St. Vital and St. Boniface.

Sir Robert McAlpine & Sons Ltd., 35 W. King St., Toronto, Ont., CA, $59,471, water mains, AJAX, ONT. Central Mortgage & Housing Corp., 227 Laurier St. W., Ottawa, Ont. E. R. P. Opie, 40 Eglinton Ave. E., Toronto, Ont., engr.

McNamara Constr. Co. Ltd., 42 Industrial St., Leaside, Ont., CA, $163,200, dredging in Westfort Turning Basin;

Consolidated Dredging Ltd., 54 Chestnut Park, Toronto, Ont., CA, $102,150, dredging Kominestikwia River,

FORT WILLIAM, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 2/13/51.

Bosco Constr., 405 Sherbrooke St. and **Cobana Constr. Co.**, Magog, Que., LB, **$107,575**, WW sys. imprvs., MAGOG, QUE. City, R. A. Boudreau, secy., Magog, Que. J. Lemieux, 165 Wellington St. N., Sherbroke, Que., engr. CD 11/22/46.

▲ **Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que. LB, **$1,538,260**, reconstructing sections 40, 41 and 42 of Montreal Harbor, wharf imprvs., MONTREAL, QUE. National Harbors Bd., West Block, Ottawa, Ont. CD 7/30/48.

Keays & Couriere, Grand Riviere, Que. CA, **$95,433**, breakwater, Dune du Sud, Madeleine Islands, QUEBEC CITY, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Aug. 13. CD 7/28.

La Societe d'Entreprises Generale Ltd., 13 Gouin Ave., Amos, Que., CA, **$296,100**, water and sewer extensions, VAL D'OR, QUE. Municipality, Val d'Or, Que. Alex Chouinard, Town Hall, Val d'Or, Que., town engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Dominion Constr. Co. Ltd., 10117 111 St., Edmonton, Alta., CA, **$550,000**, 1 story, 295x299 ft., steel, concrete WAREHOUSE and PARTS STORAGE, EDMONTON, ALTA. General Motors of Canada, Edmonton, Alta. F. H. MacDonald, 220 Kresge Bldg., Edmonton, Alta., archt. Awarded Aug. 6. CD 2/27.

Allan & Viner Constr. Co. Ltd., 602 W. H. Hastings St., Vancouver, B. C., CA, **$850,491**, 4 story, rein.-con. police administration, Cordova and Main Sts., VANCOUVER, B. C. City, City Hall, Vancouver, B. C. Bids July 31, awarded Aug. 7. CD 7/14.

Claydon Co. Ltd., 290 Garry St., Winnipeg, Man., LB **$490,293**. excavation and caisson work for POST OFFICE, Graham Ave., WINNIPEG, MAN. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 10/29.

▲ **Pigott Constr. Co. Ltd.**, Pigott Bldg., Hamilton, Ont., CA, **$2,769,000**, 7 story, 180x237 ft. concrete, steel masonry OFFICE, George St., HAMILTON, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Aug. 12. CD 8/25, under LB.

M. J., Sulphur & Sons, 400 Catherine St., Ottawa, Ont., CA, **$668,989**, Testing LABORATORY, Tunney Park, OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 8/6, under LB.

▲ **Bentall Constr. Co.**, 150 W. 1 St., Vancouver, B. C., CA, **$1,250,000**, CITY HALL and SHOPPING CENTRE, SARNIA, ONT. City Council, Mayor W. C. Lenson, Sarnia, Ont. Awarded Aug. 18. CD 9/2/52.

Foundation Co. of Canada Ltd., 428 Richmond St., London, Ont., CA **$300,000**, 3 story, 42x115 ft., PLANT OFFICE and ADMINISTRATION BLDG., SARNIA, ONT. Polymer Corp., South Vidal St., Sarnia, Ont. Bids Aug. 14, awarded Aug. 17. CD 7/29.

Foundation Co. of Canada Ltd., 166 Douglas St. W., Sudbury, Ont., CA, **$500,000**, 5 story, 42x150 ft., steel, brick HOSPITAL exten., SUDBURY, ONT. Sisters of St. Joseph, Saulte Ste. Marie, Ont. Bids July 28, awarded Aug. 14. CD 7/7.

T. J. Colbourne Constr., Ltd., 383 Weston Rd., Toronto, Ont. CA, **$503,000**, three 1 story, brick, 16,000 sq. ft. SCHOOLS, Lansing, TORONTO, ONT. First Township School Area of North York, 7 Kenneth St., Lansing, Ont. Charles P. Band, 95 Woodlawn Ave., Toronto, Ont. Awarded Aug. 18.

▲ **S. A. Dubois**, 711 Algonquin Ave., Mount Royal, Que. Owner Builds. **$4,275,000**. 75 duplex DWELLINGS and 25 APARTMENT BLOCKS, Sherbrooke St. E., near Beauclerk St., MONTREAL, QUE. H. J. Doran, 5800 Monkland Ave., Montreal, Que., archt.

Pentagon Constr. Co. Ltd., 1225 Bishop St., Montreal, Que., CA, **$750,000**, 2 story, bsmnt., rein.-con., structural steel, brick STORAGE, MONTREAL, QUE. Dow Brewery Ltd., 990 W. Notre Dame St., Montreal, Que. CD 4/29.

▲ **G. Daneault Eng.**, 5950 Cote des Neiges Rd., Montreal, Que. Owner Builds, **$3,000,000**, 12 APARTMENTS, Darlington Ave. between Drucker and McKenzie Aves., MONTREAL, QUE. C. Grenier, 170 Geneva Crescent, Mount Royal, Que., archt.

Western Constr. Co., 30 Fourth St. W., Swift Current, Sask., CA, **$100,000**, POWER PLANT addn., SWIFT CURRENT, SASK. Saskatchewan Government Telephone, Regina, Sask. E. B. Campbell, c/o owner, engr.

ALASKA

BIDS ASKED—BUILDINGS

† **Alaska, Anchorage**—HOSPITAL—B.A. 9/10—Bureau Indian Affairs, Dpt. Interior, 7229 Interior Bldg., Wash., D. C., 2 story, 29x38 ft. frame duplex on existing fdn. at Alaska Native Service Hospital, Proj. 501-228-(b).

PUERTO RICO

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Ulpiano Barnes, Roosevelt 6, Ponce, Puerto Rico, CA, Est. **$657,394**, 2.340 kms. Gurabo-San Lorenzo Rd. Proj. S-181 (3), SAN LORENZO, PUERTO RICO. Dpt. P. Wks., Santurce, Puerto Rico. Bids Apr. 9. CD 3/25.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ing. Rodolfo M. Ampudia**, E. Sue, 321, Mexico City, Mexico, CA, **$3,500,000**, 100 million c.m. capacity irrigation dam, Autland, Jalisco, MEXICO. Aria. de Recursos Hidraulicos (Hydraulic Resources Ministry), P. de la Reforma, 69, Mexico City, Mexico. Awarded Aug. 18. CD 1/28/48.

Proposed Projects

WATER SUPPLY

Mo., Kennett—City, voted bond Aug. 4, treatment and softener plant, $361,000, main extens., imprvs., $153,900, Russell & Axon, 408 Olive St., St. Louis 2, Mo., consult. engrs. CD 6/23.

N. Y., Roslyn—Town of North Hempstead, Plandome Rd., Manhasset, water imprvs. **$260,000.**

N. C., Goldsboro—City, City Hall, voted bonds Aug. 11, water and sewer extensions. **$380,000.** CD 4/17/50.

Okla., Midwest City—City, bond election Sept. 15, WW exten., $131,000. J. M. Plank, 1323½ N. Robinson St., Oklahoma City, consult. engr. CD 5/4.

Tex., Baytown—Fresh Water Supply Dist. No. 27, water distr. sys., $75,000; water storage prob. elevated steel, $40,000, near here. Rob. H. Kelly, Baytown, consult. engr.

Tex., Conroe—City, defeated bonds, elevated and ground water storage, $100,000; water mains, distr. lines, $200,000; WW sys. exten. and imprvs., $300,000. CD 7/30.

Tex., Edinburg—City, water filtration plant expansion, $100,000; c.i. water mains, extens., $125,000; increasing water storage capacity, elevated and ground reservoir, $75,000.

Tex., Gainesville—City, voted bonds, 4½ mi. 14 in. water main from water wells to city limits, $150,000; water sys. exten., imprvs., inside city limits $35,000. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, consult engrs. CD 7/24.

▲ **Tex., Galveston**—City, City Hall, Phase 1, rehabilitation water mains and distr. system $750,000; Phase 2, water pumping and filtration $500,000. Phase 3, water supply, $250,000; Phase 4, new mains and distr. lines, $1,000,000. Freese, Nichols & Turner, 2111 C & I Life Bldg., Houston, Tex., consult. engrs. CD 4/30/52.

Tex., Longview—East Texas Water Co., Inc., Longview, water ground elevated storage, $60,000; main c.i. pipe line from near city of Gladewater to White Oak's area, $50,000; distr. lines, in community, $50,000.

SEWERS, WASTE DISPOSAL

Calif., Oxnard—City, City Hall, voted bonds, sewage disposal facilities imprvs. $375,000. Currie Eng. Co., Anderson Bldg., San Bernardino, consult. engr. CD 7/7.

▲ **Ind., LaPorte**—City, City Hall, sewage treatment works, sewer extensions, $1,000,000. Chas. Cole & Son, 220 W. La Salle St., South Bend, consult. engrs.

Mich., Royal Oak—City, Gladys Holmes, clk., sanitary sewers in Northeast area in sections bounded by 13 Mile, 14 Mile between Rochester and Campbell; between 13 Mile and subdivision line south of LaSalle from Rochester to subdivision line west of Main St. $215,000, George L. Nampa, city engr.

Mo., Jackson—City, sewage treatment plant, outfall sewers, $320,000, Russell & Axon, 408 Olive St. St. Louis 2, Mo., consult. engrs.

Mo., Kennett—City, voted $207,100 bonds Aug. 4, sewer imprvs., extens. incl. sewers, lift station, Russell & Axon, 408 Olive St., St. Louis, Zone 2, consult. engrs. CD 6/23.

Mo., Perryville—City, $375,000 bond election Aug. 25, sewage treatment plant, sewer extens., imprvs. Russell & Axon, 408 Olive St., St. Louis, consult. engrs. CD 11/10/47.

N. J., Lakehurst—Boro, Boro Hall, sewage treatment plant and sewerage sys, $100,000. Knappen Tippets Abbett & McCarthy, 62 W. 47 St., New York, N. Y., engrs.

Okla., Guymon—City, sewage disposal plant, $250,000. Glenn Hatfield, Guymon, engr.

Okla., Midwest City—City, bond election Sept. 15, sewage disposal plant, $800,000; storm sewers, $70,000. J. M. Plank, 1323½ N. Robinson St., Oklahoma City, consult. engr.

Okla., Ponca City—City, City Hall, sewage disposal plant. $400,000. C. C. Pate, Tri State Bldg., Tulsa, consult. engr. Carl Morris, c/o owner, engr. CD 8/3.

Tex., Conroe—City, defeated bonds, sanitary sewer lines, $250,000; sewage disposal plant unit, $300,000; sanitary storm sewerage sys. imprvs., exten., $350,000. CD 7/30.

Tex., Houston—Inwood Terrace Corp., c/o Sterling Hogan Jr., 3965 Del Monte St., sewage facilities, $65,000; storm sewers, drainage, $60,000, in Sects. 1 and 2 of Inwood Terrace Addn.

Tex., Lake Jackson—Sharon Realty Co., c/o Jno. T. Suggs, Lake Jackson, sanitary sewers, $62,500; drainage, $60,000.

▲ **Wis., Milwaukee**—City, City Hall, storm sewers in W. Silver Spring Dr., $1,000,000; storm sewer in W. Center St., $500,000. Lloyd D. Knapp, city engr.

BRIDGES

▲ **D. C., Wash.**—National Capitol Park & Planning Comn., C St. between 18 and 19 Sts. N.W., Wash., D. C., bridge, tunnel and road work. $2,400,000. Bureau P. Roads will invite bids. CD 11/21/51.

Mo., Jefferson City—City, bond election Sept. 15, south approach to new bridge over Missouri River, $100,000.

Tex., Galveston—Galveston Co., Court House, bridge across San Luis Pass. $275,000. CD 10/4/46.

Tex., San Antonio—Bexar Co. Road Dist. No. 1, Court House, bridge, $500,000.

▲ **Ont., Ottawa**—Federal District Comn., 291 Carling St., Imprvt. program of Chandiere Bridge, relaying OTC tracks, repaving bridge floor, $1,000,000.

STREETS AND ROADS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Buckland-Shelburne—hy. constr. Rte. 2, $2,000,000.
Hancock—hy. constr. Rte. 43, $150,000.
North Adams—hy. constr. Rte. 8 Lower Bridge, $140,000.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., 65 Prospect St., Trenton,
Hudson Co.—8.5 mi. 6-lane elevated toll road connecting Newark Airport Interchange of N. J. Turnpike with Holland Tunnel to incl. $40,000,000 high level bridge over Newark Bay, $100,000,000.

▲ **OHIO**—State Hy. Dpt., Columbus,
Lucas Co.—four-lane divided highway, 9 mi. Reynolds Rd. from Illinois Ave. in Maumee, northward to Central Ave. in Toledo. $2,000,000. George Lieber, c/o owner, div. engr.

▲ **RHODE ISLAND**—State P. Wks. Dpt., State Office Bldg., Providence,
Providence—freeway (1st portion) incl. Fox Point Bridge, approx. 1 mi. Fox Point Blvd. and Hayward Park. $11,600,000. Charles A. Maguire & Assoc., 142 Richmond St., Providence, consult. engrs. CD 8/14/51.

S. C., Columbia—City, City Hall, Sect. 2 of 1953 street imprvs. 5.8 mi. $125,000. CD 8/29.

Tex., Crockett—Houston Co., c/o Comrs. Court, road work, from State Hy. 45 to cut road intersection 10 mi., $120,000; 7 mi. exten. of Farm Road 1949 to State Hy. 21, $75,000; 8 mi. from city limits of west of Crockett West on Hall's Bluff Rd. to road junction, $90,000.

Tex., Dallas—City, City Hall, Main and Harwood Sts., asph. paving of Marsala St.-Garsa to Ledbetter Sts., $180,000, Albert H. Halff, 4591 Reims Place, consult. engr.; asph. paving and drainage Gaston Ave. Hall to Fitzhugh Sts., $150,000, Raymond L. Goodson, Jr., 4809 Abbott St. consult. engr.; asph. paving Beckle-Zang to Greenbrier Sts., 6 lane divided, $100,000, Tears Engineers, 4716 Cole Ave., consult. engrs.; asph. paving portions of 7 streets (York, Bertrand, Hastings, Freddie, etc.) $80,300, C. L. Moon Assoc., 6115 Belgrade St., consult, engrs.; asph. paving 12 streets, Crestview, Redfield, Villars, Loving Sts. etc.) $149,250, Frank W. Chappell & A. M. Brenneke, Burt Bldg., consult. engrs. CD 11/21/51.

Tex., Ennis—City, voted $125,000 bonds, imprv. Hy. 75 inside city limits. CD 8/5.

Tex., Galveston—Galveston Co., Court House, compacted sand and shell base, asph. topping, 12½ mi. raised all-weather road length of Island, $350,000. D. V. DePasquale, c/o Court House, engr. CD 4/22/48.

Tex., Houston—Briargrove Development Co., 5500 Westhiemer St., streets and road construction and hard-type paving, concrete curbs, gutters 1 mi. beyond Briarcroft Addition, $110,000.

Ont., Ottawa—City, City Hall, Sussex St. Imprvs. Incl. reconstr. roads, sidewalks, curbs, lighting, etc. $548,180.

EARTHWORK, WATERWAYS

Tex., Fort Worth—Tarrant Co. Water Control & Imprvt. Dist. No. 1, c/o Joe Hogsett, pres., 501 Danciger Bldg., 2 flood control dams on Marine Creek part of Fort Worth Floodway Control program. Freese & Nichols, 407 Danciger Bldg., consult. engrs. CD 5/14/43.

▲ **Wash., Anacortes**—Puget Sound Power & Light Co., Stuart Bldg., Seattle, Zone 1, steam power plant, $10,000,000.

Alaska, Petersburg—Town, Town Hall, hydro dam, power house, 1 mi. pipe line and 18 mi. transmission line, $750,000, R. W. Beck & Assoc., Tower Bldg., Seattle 1, Wash., consult. engrs. CD 5/22.

AIRPORTS

Mo., Jefferson City—AIRPORT—City, bond election Sept. 15, exten. runways at municipal airport, $100,000. CD 4/13/50.

Pa., Wayne—AIRPORT—Philip W. Kniskern, 20 S. 15 St., Phila., private airport, $150,000.

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▲ **Tex., Harlingen**—RUNWAYS, etc.—City, City Hall, runway and taxiways, $1,000,000; general airport area permanent type paving, other than runways and taxiways, $200,000; main administration bldg. and allied bldg. facilities, $350,000; airport utilities, water, sewers, gas lines, electric lighting, $250,000; airport shops, $200,000, 5 mi. west of here.

LATIN AMERICA

▲ **El Salvador, San Salvador**—MEDICAL CENTER—The Ministry of Public Health & Social Assistence, San Salvador, has received plans by the IBEC Housing Corp., 30 Rockefeller Plaza, New York, N. Y. for a medical center, approx. $7,200,000.

FOREIGN

▲ **Brazil, Rio De Janeiro**—PLANT—Brazilian Sugar & Alcohol Institute, Rio De Janeiro, plans cellulose mfg. plant, $2,000,000-$4,000,000; paper mfg. plant, $2,000,000-$4,000,000.

PUBLIC BUILDINGS

▲ **Calif., Redding**—SCHOOLS—Shasta Union High School District, Redding, bond election Sept. 29, schools in Enterprise and Central Valley, etc. $2,000,000. CD 11/17/48.

Calif., San Marcos—SCHOOL—San Marcos School District, $700,000. bond election Oct. 9, schools.

Colo., Pueblo—HEATING PLANT—State of Colorado Public Institutions, State Office Bldg., Denver, enlarging steam heating plant, State Hospital. $725,000. Rocky Mountain Eng. Co., 1435 Welton St., Denver, consult. engr. and archt.

Conn., Windsor Locks—SCHOOL—Town Educ., Dpt., High School, 50 Church St., plans by Ernest Sibley & Ernest Sibley Jr., 7 S. Main St., West Hartford, high school. $500,000. Robert W. Loomis, 32 Maple Ave., struct. engr. Paul D. Bemis, 36 Pearl St., Hartford, mech. engr. CD 5/16/52.

Del., Newark—SCHOOL—Newark Bd. Educ., constr. Brookside Elementary School. $760,000.

▲ **Ga., Columbus**—HOSPITAL—City and Muscogee Co., Court House, plans by E. Oren Smith, 1236 Wildwood Ave., hospital addn. $1,800,000. CD 6/17.

Ill., Round Lake—SCHOOL—School District 116, Round Lake, plans by Barry & Kay, 53 W. Jackson Blvd. Chicago, Zone 4, 2 story, bsmnt., brick, concrete high school. $700,000.

Ind., Seymour—HOSPITAL—Schenck Memorial Hospital, R. W. Keves, admin., Seymour, plans by McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, Zone 4, 2 story, bsmnt., brick, rein.-con. hospital addn. $850,000. CD 4/9.

▲ **Md., College Park**—DORMITORIES—Maryland University, College Park, plans by Ted Englehardt, 8347 Colesville Rd., Silver Spring, women's dormitories incl. 9 units, $850,000; plans by Wilson Booth, Salisbury, men's dormitories, incl. 9 units, $850,000; plans by Walton & Maddon, 3510 Rhode Island Ave., Mount Rainier, men's dormitories, incl. 7 units, $600,000. CD 10/7.

Minn., Buffalo Lake—SCHOOL—Bd. Educ., voted $620,000. bonds Aug. 5, school addn.

▲ **Minn., Cambridge**—SCHOOL—State, Dpt. Admin., State Capitol, St. Paul, plans by Shiffler, Backstrom & Carter, 17 W. Franklin Ave., Minneapolis, enlarging State School and Hospital, $2,000,000.

Minn., St. Louis Park—SCHOOL—Bd. Educ., H. Enestvedt, supt. Schools, plans by Haxby, Bissell & Belair, 1111 Nicolet Ave., Minneapolis, Senior High School, 33 St. and Dakota Ave. $2,750,000. CD 7/16/52.

Miss., Greenwood—PLANT—City, voted $750,000 bonds plant for Conmar Products Corp. CD 6/22, under Industrial Buildings, Conmar Products Corp. as owner.

▲ **Mo., Liberty**—HOSPITAL—Clay County Membership Hospital Assn., c/o Alan F. Wherritt, Liberty, hospital on 35 acre site, North Kansas City. $2,000,000, John Smiley, supt. St. Luke's Hospital, 44 and J. C. Nichols Parkway, Kansas City, Mo., advisor. CD 10/17.

N. H., Durham—DORMITORY—University of New Hampshire, Bd. Trustees, Presidents Office, Durham, plans by Arnold Perreton Assoc., 3 Capital St., Concord, womens dormitory, $500,000. Dirsa & Lampron, 922 Elm St., Manchester, assoc. archts. CD 11/28/50.

▲ **N. Y., Brooklyn**—HOUSING—New York City Housing Auth., 63 Park Row, New York, Zone 38, plans by Katz, Waisman, Blumenkranz, Stein & Weber, 327 Lexington Ave., New York, Zone 16, Bay View House on 36-acre site bounded by Seaview Ave., E. 102 St., Shore Parkway and Rockaway Parkway, incl. 23 eight story bldgs. for 1603 families, $20,325,000.

Okla., Enid—AUDITORIUM—Bd. Educ., Enid, plans by M. N. Wheeler, Enid, auditorium addn. to high school, $600,000.

▲ **O., Niles**—SCHOOL—Bd. Educ., Niles, $2,280,000 bond election Nov. 3, school bldg. program, Senior High School, $1,200,000; remodel and rehabilitate existing bldgs. $1,080,000.

▲ **Pa., Fallsington**—SCHOOL—Falls Twp. School Auth., Fallsington, plans by A. E. Micklewright, 72 Ewing St., Trenton, N. J., Wm. Penn Junior High School, $1,000,000.

▲ **Pa., Warminster**—SCHOOL—Warminster Twp. School Bd., Hartsville, plans by A. E. Micklewright, 72 Ewing St., Trenton, N. J., Centennial Senior High School, $1,300,000.

Pa., West Chester—COURT HOUSE—Comrs. Chester Co., court house annex, $500,000.

▲ **Tex., Arlington**—SCHOOLS—Arlington Independent School Dist., Arlington, voted bonds, Elementary School No. 1. $400,000; Elementary School, No. 2, $425,000: elementary school addn., $325,000; new high school, some remodeling to existing high school, $475,000; general school remodeling and repairing. $500,000. convesion existing school into Junior High School, $375,000. Geo. A. King & Assocs., 819 Penn St., Fort Worth, archts. CD 7/30.

▲ **Tex., Dallas**—HIGH SCHOOL—Dallas Independent School Dist., Ross Ave., plans by Buford & Feinberg, 326 Interurban Bldg., L. V. Stockard Junior High School. $1,134,700. CD 9/23/49.

Utah, Salt Lake City—CLASSROOM—State Bldg. Bd., State Capitol, plans by R. Lloyd Snedaker, 706 Utah Savings & Trust Bldg., classroom, $800,000.

▲ **Va., Harrisonburg**—SCHOOL—Harrisonburg School Bd., City Hall, Keister Elementary School, constr. Waterman School addn. $1,400,000.

▲ **Wash., Port Orchard**—SCHOOL—School Board District 402, Port Orchard, plans by Mallis & DeHart, Lyon Bldg., Seattle, Zone 4, Orchard Heights Junior High School. $1,000,000.

Ont., Port Credit—SCHOOL—South Peel Bd. Educ., J. A. Brown, secy., constr. Junior-Senior High School, Ogden Ave. $500,000.

COMMERCIAL BUILDINGS

▲ **Calif., San Diego**—HOTEL—El Cortez Hotel, 7 and Ash Sts., plans by Richard George Wheeler & Assoc., 3537 5 Ave., 8 story, rein.-con. El Cortez Hospital addn. $1,000,000.

Calif., Torrance—DWELLINGS—Harris Homes, Inc. & Keel Homes, Inc., 5501 Pacific Coast Hy., plans by Southwest Drafting Co., 2724 W. Florence Ave., Los Angeles, 84 dwellings $672,000.

▲ **Del., Wilmington**—CONVALESCENT HOME—The Memorial Hospital, 1501 Van Buren St., Wilmington, plans by Walter Carlson, 1014 Delaware Ave., convalescent home, $1,000,000.

Ill., Melrose Park—SCHOOL—Lutheran High School Assoc., 77 W. Washington St., Chicago, Zone 2, plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, high school, Chicago St. and 9 Ave. $600,000. CD 5/8.

Mo., Kansas City—OFFICE—Allstate Insurance Co., Div. Sears, Roebuck & Co., 15 and Cleveland Sts., Kansas City, Mo., plans by Sharp & Simon, 25 E. 12 St., Kansas City, Mo., office, 34 acre tract, 63 Rd., 60 Terrace, Elmwood St., Missouri Pacific R. R. tracks, $760,000.

▲ **Mo., St. Louis and St. Louis County**—FOOD CENTER—National Food Center Stores, W. H. Sievert, branch mgr., 1106 Central Industrial Dr., Zone 10, 10 addnl. Food Center Stores, parking areas in St. Louis area. $3,500,000.

N. Y., Brooklyn—APARTMENT—Punia & Marx, Inc., 16 Court St., Zone 2, plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, 6 story apartment, 8105-25 Fourth Ave. $400,000.

N. Y., Brooklyn—APARTMENT—Punia & Marx, 16 Court St., Zone 2, plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, 6 story apartment, 580 84 St. $440,000.

▲ **N. Y., Brooklyn**—APARTMENT—Wesley A. Roche, 32 Court St., Zone 2, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 2515 E. 29 St. $1,200,000.

▲ **N. Y., New York**—APARTMENT—Abe Spirer, 1177 Grand Concourse, Zone 52, plans by Melvin E. Kessler, 118 E. 28 St., Zone 16, 14 story apartment eastside of Henry Hudson Parkway between 235 and 236 Sts., $2,400,000.

N. Y., New York—APARTMENT—320 W. 90 St. Street Corp., 120 Central Park West, Zone 23, plans by Albert Goldhammer 6 Varick St., Zone 13, 6 story apartment, 235 St. between Cambridge and Oxford Aves. $900,000.

O., Massillon—EXCHANGE—Ohio Bell Telephone Co., R. C. King, dist. mgr., 401 Cleveland Ave. N.W., Canton, exchange bldg. addn. $500,000.

Okla., Tulsa—OFFICE—Preston Reynolds, Jr., Mercantile Bldg., Dallas, Tex., plans by Walter W. Ahlschlager, Jr., 212 S. St. Paul St., Dallas, Tex., 8 story office, 6 and Boston Sts. $400,000.

▲ **Pa., Brookhaven**—SHOPPING CENTER—Winchester Constr. Co., c/o Charles Sporkin, 16 S. Brood St., Phila., shopping center, $1,500,000.

Pa., Harleysville—HOME, etc.—New Life Boys' Ranch, Harleysville, plans by Ernest Reisinger, Carlisle, home, dining hall, gymnasium, chapel, $500,000.

▲ **Pa., Morrisville**—RESIDENTIAL DEVELOPMENT, etc.—Milton Berger, c/o Sherwood Realty Co., 2018 Walnut St., Phila., residential development, shopping center, $6,500,000.

▲ **Tex., Dallas**—SHOPPING CENTER—A. Harris & Co., Main and Akard Sts., plans by Walter Becket, FAIA & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., field stone exterior, concrete, steel frame, textured concrete and glass super shopping center, 20 acre tract, $5,000,000; 10-acre hard paved parking center, $200,000, Kiest Blvd., Beckley and Zang Sts.

Tex., Dallas—OFFICE—Arnold Weil & Assoc. (Henry S. Miller Jr., leasing agt.) Commercial Bldg., plans by Geo. W. Edwards, 1509 A Cochran St., office for

housing medical and dental offices, Preston Square on Westchester Dr. $500,000. CD 12/16/46.

Tex., Houston—SHOPPING CENTER—Briargrove Development Co., 5500 Westheimer Rd., shopping center 4-acre tract in developing area 1 mi. beyond Briarcroft Addition. $450,000.

▲ **Tex. Houston**—DWELLINGS—Inwood Terrace Corp., c/o Sterling Hogan Jr., 3965 Del Monte St., 30 dwellings, $315,000; 40 dwellings, $350,000; 34 dwellings, $335,000; 45 dwellings, $375,000 in an addnl. Sect. 2 of Inwood Terrace.

▲ **Tex., Houston**—HOTEL—Western Hills Hotel, Inc., Hank Green, pres., 6451 Camp Bowie, Fort Worth, 200-room hotel. $2,500,000.

▲ **Tex., San Antonio**—HOTEL—Western Hills Hotel, Inc., 6451 Camp Bowie St., Fort Worth, plans by Carlos Schoeppl, consult. archt., 2701 Biscayne Blvd., Miami, Fla., and Charles Dilbeck, exec. archt., 3113 McKinney St., Dallas, 300-room hotel, $4,000,000; heliport, $90,000; Cabanas type rein.-con. swimming pool. $100,000. CD 8/17.

Tex., Tyler—OFFICE—Dr. Howard Bryant, Tyler, 6 story addn. above the 5 story bldg. under constr., also 3 story addn. on southside of bldg. $600,000.

Tex., Tyler—HOTEL—Blackstone Hotel, Ralph Hitz, mgr. Tyler, remodeling, expanding hotel, $500,000.

▲ **Alta., Edmonton**—SHOPPING CENTER—Shoppers Park Ltd., c/o Main, Rensa & Minsos, archts., MacCosham Bldg., 400,000 sq. ft. shopping center 30-acre site in western part of city. $5,000,000.

▲ **Ont., Ottawa**—HOUSING—Samuel Berger, 227 Laurier Ave. W., housing development, incl. 200 houses and shopping centre, on former McKellar Golf Course $4,000,000.

▲ **Ont., Toronto**—HOSPITAL—Sisters of Misericorde, c/o Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, archts., 515 Jarvis St., hospital in Scarborough Township, $2,300,000.

▲ **Que., Cap de la Madeline**—BASILICA—Les Rev. Freres Oblate de Marie Immaculee, Rev. G. Houle, Econome Provincial, 1201 Visitation St., Montreal, plans by A. Dufresne 205 Royale St., Beauport, Basilica "Notre Dame du Cap", $2,000,000.

▲ **Que., Montreal**—HOTEL—Canadian National Railways, R. O. Stewart, ch. engr., Montreal, 20 story, 1000 room 230x300 ft. hotel, Dorchester and Mansfield Sts. $20,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., El Segundo**—REFORMER—Standard Oil Co., 225 Bush St., San Francisco, large catalytic reformer for upgrading of gasoline. $15,000,000. (Correction—cost). CD 8/12.

▲ **Ill., Woodstock**—LABORATORY—Morton Salt Co., 120 S. LaSalle St., Chicago, 2 story, bsmnt., 400,000 sq. ft. research laboratory. $4,000,000.

▲ **La., Norco**—PLANT—Shell Chemical Corp., Shell Bldg., Houston, Tex., chemical plant to mfg. glycerine, $7,500,000.

N. Y., Maspeth—FACTORY, etc.—Industrial Realty Co., c/o Harold Abbey & Co., archts., 47-55 37 St., Long Island City, 2 story, 240x276 ft. factory, warehouse and office, Grand Ave. and Rust St. $400,000.

▲ **Okla., Enid**—GRAIN ELEVATORS—Union Equity Co-operative, Enid, 16 mil. bu. cap. addn. to grain elevator. $6,000,000. C. O. Puckett, Enid, engr.

Pa., Woodlyn—SUB-STATION—Phila. Electric Co., 900 Sansom St., Phila., sub-station, $840,000. Leland B. Dyke, c/o owner, engr.

▲ **Tex., Houston**—STEAM ELECTRIC STATION—Houston Lighting & Power Co., 1016 Walker St., outdoor steam electric station on ship channel 700 acre site, to be known as Sam Berton Steam-Electric Station, $20,000,000. CD 3/28/51.

▲ **Tex., Longview**—PLANT—Texas Eastman Co., Div. of Eastman Kodak, Longview, synthetic hard-wax plant, $3,800,000; warehousing or storage, $200,000; plant area hard-type paving and loading platforms, $150,000.

▲ **Wash., Sedro Woolley**—SHOP—Skagit Steel & Iron Works, Sedro Woolley, machine shop addn., $500,000. $3,000,000 with equip.

UNCLASSIFIED

Arizona—RURAL DISTRIBUTION LINES—Navopache Electric Co-operative, Lakeside, 100 mi. rural distr. line and sys. imprvs., Navajo Co. $400,000. CD 4/9/52.

Kan., Kansas City—DIKES—Kaw Valley Drainage Bd., Cyrus W. Long, pres., Court House, dike repairs, near here. $193,504.

Minnesota—RURAL DISTRIBUTION LINE—Goodhue County Electric Co-operative Assoc., Zumbrota, 20 mi. rural distr. lines, sys. imprvs., Goodhue Co. $370,000. CD 5/24/48.

Mo., Jefferson City—DRIVE-IN THEATER—Durwood Theaters, Stanley H. Durwood, gen. mgr., 1806 Baltimore Ave., Kansas City 8, Mo., 500-car drive-in theater on U.S. No. 50 (St. Louis Rd.) mile from eastern city limits, $100,000.

New Jersey—RURAL DISTRIBUTION LINES—Tri-County Rural Electric Co., Freehold, 15 mi. rural distr. lines and sys. imprvs., Monmouth Co. $123,000. CD 2/28/49.

New Mexico—RURAL DISTRIBUTION LINES—Otero County Electric Co-operative, Cloudcroft, 165 mi. rural distr. line and sys. imprvs., Otero Co. $315,000. CD 11/26.

▲ **New York and New Jersey**—TUNNEL—Port of New York Auth., 111 8 Ave., New York, N. Y., authorized a traffic survey for fourth traffic tunnel under Hudson River from West 14th St., New York City to Hoboken, N. J. $200,000,000.

N. Y., New York—COMFORT STATION, etc.—Dpt. Parks, Arsenal Bldg., comfort station, playground, 93 Fort George Ave. $160,000. Andrews, Clark & Buckley, 305 E. 63 St., Zone 21, engrs.

Ohio—GAS PIPE LINE—Ohio Fuel Gas Co., 109 N. Front St., Columbus, 3¼ mi. 12.75 in. gas pipe line southeast of Laurelville to Chillicothe area, $110,000; replacing approx. 6 mi. 18 in. main transmission line between Mt. Sterling and Sugar Grove, $220,000.

Oklahoma—RURAL DISTRIBUTION LINES—Verdigris Valley Electric Co-operative, Collinsville, 184 mi. rural distr. line and sys. imprvs., Rogers Co. $415,000. CD 7/6/51.

Texas—TELEPHONE LINES—Hill Country Telephone Co-operative, Fredericksburg, expanding rural telephone services, pole lines, Fredericksburg, $302,000; expanding rural telephone services, pole lines, etc., Kerrville, $300,000; expanding rural telephone services, pole lines, etc., Mason, $300,000.

Texas—RURAL DISTRIBUTION LINES—North Plains Electric Co-operative, Perryton, 47 mi. rural distr. lines, 10 mi. new tie lines, sys. imprvs., Perryton, Ochiltree Co. $215,000. CD 12/14/50.

Tex., Houston—HELIPORT, etc.—Western Hills Hotel, Inc., c/o Hank Green, pres., 6451 Camp Bowie, Fort Worth, heliport, $90,000; rein.-con. cabanas type outdoor swimming pool, $80,000.

Tex., Laredo—ANTENNA SYSTEM—International Television Inc., Laredo, erecting master TV Antenna System, $175,000.

Tex., San Antonio—HELIPORT, etc.—Western Hills Hotel, Inc., 6451 Camp Bowie, Fort Worth, constr. heliport, $100,000; cabanas type rein.-con. swimming pool, $100,000.

Utah—RURAL DISTRIBUTION LINES—Garkane Power Assoc., Richfield, 16 mi. rural distr. lines, 69 mi. 44 KV transmission line and sys. imprvs., Garfield Co. $440,000. CD 6/4/48.

Wash., Seattle—SWIMMING POOL—Seattle Park Bd., 100 Dexter Ave., plans by Lamont & Fey, 308 Columbia St., North End Swimming Pool, at Green Lake, $200,000. CD 11/12.

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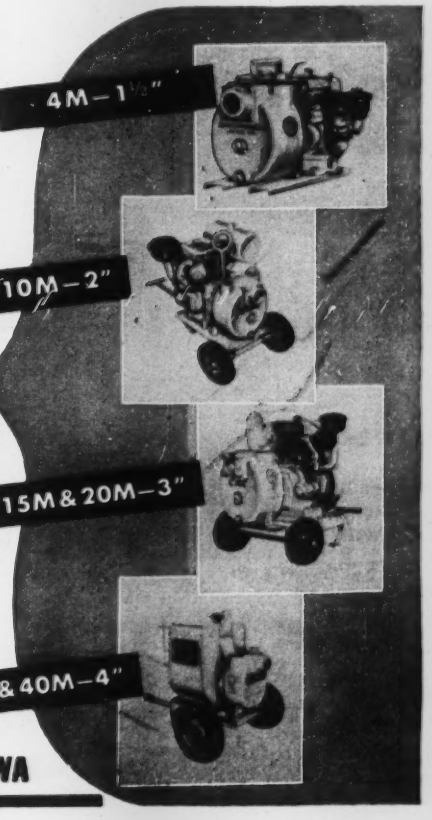

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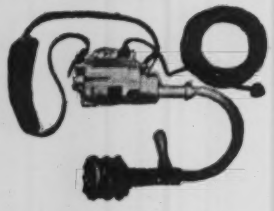

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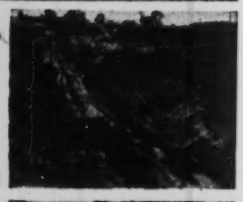
CINCINNATI 32, OHIO

WET JOBS

Whether it's

HEAVY CONSTRUCTION



BUILDINGS

SEWERAGE

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GRIFFIN

WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
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Toronto Montreal Halifax

UNIT PRICES

Dam & reservoir, Pennsylvania

Eight of nine bids on the First Fork flood control dam and reservoir in Cameron county, Pa. were below the engineers' estimate by Gannett, Fleming, Corddry & Carpenter, Inc., Harrisburg, Pa. The $6,682,570 contract award, low bid by Nello L. Teer, Durham, N. Carolina, was 13% below the estimate and the high bid was less than 1% above the engineers' calculation.

The dam will have a 1,650-ft long, 170-ft high embankment and a 210-ft high concrete intake structure. Concrete will be used to line the 16-ft diameter, 1,150-ft long tunnel and the 230-ft long stilling basin. The concrete spillway will be 260-ft wide. Guniting may be required on the shale foundations to keep them from disintegrating. The reservoir water level will be controlled by two broome type sluice gates, 8-ft x 16-ft, designed to operate under a maximum head of 161-ft. Bidders include:

1C	Nello L. Teer, Durham, North Carolina	$6,682,570
2	Harrison Const. Co., Pittsburgh, Pa.	6,739,670
9	Arundel Corp., Baltimore, Maryland	7,721,744
EE	Gannett, Fleming, Corddry & Carpenter, Harrisburg, Pennsylvania	7,675,415

Bids. 7-29-53 Item	Unit	Quantity	Unit Prices 1C	2
Diversion	ls	1	$70,000	$160,500
Clearing	ls	1	50,000	150,000
Stripping & grubbing	cy	70,000	0.60	0.70
Exc, common, trench & drain	cy	65,000	1.00	0.90
rock	cy	370	22.50	20.00
common, spillway& ditch	cy	390,000	0.85	0.55
rock rough, spillway	cy	844,000	1.60	1.45
common, tower, basin & channels	cy	74,500	1.00	0.90
rock, tower, basin & channels	cy	30,000	2.50	1.60
rock, finish	cy	21,000	15.00	14.00
uncl, tunnel & transition	cy	14,500	16.00	14.00
Embankment, from exc	cy	440,000	0.15	20.23
from borrow area no. 1	cy	600,000	0.85	0.70
from borrow area no. 2	cy	250,000	0.95	0.70
from borrow area no. 3	cy	270,000	1.20	1.10
Dumped rock, upstream slope	cy	58,000	0.50	1.50
Crushed stone, topping & filters	cy	56,000	5.75	3.50
Downstream rock fill, from excavation	cy	190,000	0.15	0.50
Random rock fill from exc.	cy	270,000	0.15	0.25
Dumped stone rip rap	cy	2,300	1.00	15.00
Backfill, structural	cy	7,500	3.50	0.75
Rubble gutters, mortared	sy	3,900	8.00	15.50
Seeding, topsoil & mulch	sy	10,000	0.50	0.55
Diamond drilling, 1½" holes	lf	9,500	2.00	3.50
2" holes	lf	1,500	2.75	4.50
3" holes	lf	1,000	2.25	5.00
Pressure grouting	bags	18,000	3.00	4.00
Drilling & grouting anchor holes	lf	8,750	2.00	1.20
Culvert, reinf conc, 60"	lf	28	50.00	40.00
Concrete, tunnel	cy	4,030	45.00	45.00
transitions	cy	1,800	47.00	66.00
intake structure, substructure	cy	7,600	45.00	50.00
stilling basin baffles & slab	cy	1,000	42.00	32.50
stilling basin walls, gravity	cy	500	50.00	64.00
stilling basin walls, reinforced	cy	2,000	40.00	44.00
spillway slabs	cy	3,650	30.00	30.00
spillway gravity walls	cy	3,500	35.00	34.00
spillway reinf walls	cy	1,150	50.00	60.00
spillway Ogee & bucket	cy	6,900	36.00	44.00
keywall & grout cap	cy	480	35.00	32.00
bulkhead walls	cy	40	75.00	65.00
road culvert walls	cy	25	60.00	65.00
Intake struct, superstruct	ls	1	55,000	60,000
Bridge, spillway	ls	1	70,000	66,000
Bridge access to intake struct	ls	1	40,000	36,000
Reinf steel	lb	1,800,000	0.15	0.16
Miscellaneous metal	lb	60,000	0.60	0.40
Pipe railing, in place	lb	16,000	1.00	0.60
Project tablet	ls	1	2,000	3,000
Traveling crane	ls	1	80,000	135,000
Gates, guides, frames, liners, covers	ls	1	205,000	245,000
Gate dogging devices & lifting beams	ls	1	185,000	178,000
Gate hoists, cables & controls	ls	1	145,000	135,000
Stop logs, steel & timber	ls	1	80,000	6,000
Stop log liners, guides, covers, lifting beam	lb	20,000	0.60	0.40
Stop log handling facil	ls	1	7,500	9,500
Trash rack support & guide	lb	22,500	0.35	0.42
Trash rack	lb	25,000	0.30	0.30
Guard fence	lf	1,000	5.00	9.00
Upstream recording sys	ls	1	8,500	7,500
Plumbing & piping, intake structure	ls	1	15,000	40,000
Tile gages	lf	165	20.00	12.00
Cableway & tower	ls	1	7,500	6,500
Gage house	ls	1	5,000	45,000
Tunnel & trans bracing & lagging—str stl	lb	320,000	0.19	0.18
timber	mbf	5	325.00	800.00
Gunite protection	sf	10,000	0.60	0.55
Grout pipes	lb	17,600	0.35	0.20
F&I 6" drain tile	lf	1,800	1.00	2.50
8"	lf	900	1.50	3.00
10"	lf	400	2.50	4.00
12"	lf	370	3.00	5.00
F&I 12" corr met pipe	lf	40	4.50	6.00
15"	lf	50	6.00	7.00
Toe drain manhole	ls	1	1,500	1,300
Water stop, copper	lf	1,200	1.60	2.00
Water stop, rubber	lf	5,800	1.25	2.00

Bridge, Oklahoma

Stebbins Construction Co., lowest of five bidders, was awarded a $36,077 bridge contract by the Oklahoma State Highway Department, Robert V. Lowery, county engineer. The Stebbins bid was 10% below the engineer's estimate.

The bridge will be 256-ft, 2-in long, consisting of two 80-ft and one 60-ft pony trusses with one 30-ft I-beam span. There will be a 17-ft, 10-in roadway with a concrete floor. The trusses and I-beam span will be furnished by the owner and the contractor must widen, repair, paint and erect them.

A concrete substructure is also to be constructed with the footings of the north abutment and two channel piers in solid rock.

Skilled workers are receiving a minimum of $1.00 per hr; semi-skilled workers, $0.75 per hr; and common laborers, $0.75 per hr.

The job will be completed in 120 working days. Bidders include:

1C	Stebbins Const. Co., Tulsa, Oklahoma	$36,077
2	Gaines Bros., Miami, Oklahoma	37,087
5	Amis Construction, Oklahoma City, Oklahoma	49,844

Bids. 7-21-53 Items	Unit	Quantity	Unit Prices 1C	2
Substruct exc, common	cy	215	$6.00	$4.00
rock	cy	72.6	24.00	17.50
Cl A concrete	cy	152.8	47.00	45.00
Cl A conc pier & abutment bases	cy	61.0	45.00	45.00
Cl AA conc	cy	87.0	45.00	45.00
Reinf steel	lb	37,630	0.12	0.11
Structural steel	lb	12,000	0.20	0.55
Reinf conc piles	lf	296	11.00	7.50
Handrail	lf	82.5	4.50	8.50
Erect two 80' & one 60' stl truss & one 30'I- beam span	ls	1	6,750	7,500

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 8, 15 Massachusetts

BIDS ASKED—BUILDINGS

▲ **Mass., Sturbridge**—SCHOOL—B.A. 9/17—Towns of Sturbridge, Brookfield, Brimfield, Wales and Holland, Tanasqua Regional Dist., School Bldg. Comn., Sturbridge, Tanasqua Regional Dist. School, Brimfield Rd., $1,000,000. Plans deposit $50. Extended date, Anderson Nichols & Co., 150 Causeway St., Boston, engrs. and archts. CD 8/11.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 15 Delaware September 17 New York
STREETS AND ROADS
September 8 Maryland
September 15 Delaware
September 10, 15, 22 New Jersey
September 17 New York

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **J. Rich Steers, Inc.,** 17 Battery Pl., New York, 4, N. Y. LB, $4,393,200, Alternate B, prestressed concrete, Pier C at Hoboken-Port Authority Piers, Contr. HP 110-0.2, HOBOKEN, N. J. The Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids Aug. 25. CD 7/31.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Ryan Bros., Inc., Clearfield, Pa. CA $1,816,796. constr. 7.23 mi. conc. pavement variable to 24 ft .wide; 4 rein.-con. boxes, spur connection, divided hy. rein.-con. pavement variable 24 ft. wide on each side of divisor, three I-beam bridges over South Branch of Tunkhannock Creek, Tunkhannock Creek and over U.S. 11, U.S. 11, T.R. 92 in Tunkhannock and Clinton Twps., Wyoming Co. CD 8/11, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
New Enterprise Stone & Lime Co., Inc., New Enterprise, Pa. LB $199,293. bit. surf. existing pavement bridge floors 20 ft. wide 5.18 mi. from Hopewell, westerly, T.R. 26 in Hopewell and Broad Top Twps., Bedford Co.;
Jack & Jim Maser, Inc., Box 116, Brownston, Pa. LB $633,472. relocate for nearly 3 mi. constr. crushed aggregate base with bit. surf. 22 ft. wide, 3 rein.-con. culverts and I-beam bridges over Northkill and Little Northkill Creeks over 5.44 mi. from Obald, northwest through Bernville and northwesterly, T.R. 83 in Bernville Borough and Penn and Jefferson Twps., Berks Co.;
B. G. Coon Constr. Co., 278 Union St., Luzerne, Pa. LB$547,829. constr. addnl. traffic lanes with precast divisor or rein.-con. 25 ft. wide and 3.49 mi. long and constr. 2 plate girder overhead bridges between Naticoke and Wilkes-Barre, Legislative Rte. 40033 in Hanover Twp., Luzerne Co. Bids Aug. 21. CD 8/7.

BUILDINGS

LOW BIDS AND CONTRACTS

Saxon Woods Homes, c/o Karl Block, archt., 7 Landsdown Ave., Merrick, N. Y. Owner Builds, $800,000, 75 HOUSES on tract on Carmen Rd., FARMINGDALE, N. Y.

▲ **Starrett Bros. & Eken,** 63 Wall St., New York 5, N. Y. CA, est. $1,000,000, 2 story OFFICE and HEADQUARTERS, on 55-acre tract on Westchester Ave., HARRISON, N. Y. Standard-Vacuum Oil Co., 26 Broadway, New York 4, N. Y. Eggers & Higgins, 100 E. 42 St., New York 17, N. Y., archts. CD 6/18, under N. Y., Rye.
Bay Haven Homes, c/o Alwin Cassens Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds, $800,000, 65 HOUSES on tract on Island Parkway near Long Beach Rd., ISLAND PARK, N. Y.
▲ **Tappan On the Terrace Homes,** c/o Rudolph Novak, archt., 713 Main Ave., Clifton, N. J. Owner Builds, $2,000,000, 120 HOUSES on 50-acre tract on Leonard Dr., OLD TAPPAN (P. O. Tappan), N. Y.
Virginia Park Homes, c/o John W. Burton, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds, $900,000, 80 HOUSES on tract on Virginia Ave., near Baldwin Dr., PLAINEDGE, N. Y.
▲ **Willben Estates Homes,** c/o Stanley Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds, $1,000,000, 75 HOUSES on tract on Plainview Rd. south of Northern State Parkway, PLAINVIEW, N. Y.
▲ **East Hills Park Homes,** c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds, $1,650,000, 110 HOUSES on tract on Guinea Rd., a block south of Northern State Parkway, ROSLYN, N. Y.
▲ **Empress Gardens Homes,** c/o George Foster, archt., 5 Liberty St., Hempstead, N. Y. Owner Builds, $3,000,000, 204 HOUSES on 45-acre tract on Waverly Ave., WANTAGH, N. Y.
▲ **Sherwood Gardens Homes,** c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds, $1,800,000, 75 HOUSES on tract at Powells' Lane and Jericho Turnpike, WESTBURY, N. Y.

▲ **Laurel Park Homes,** c/o William Chirgotis, 968 Stuyvesant Ave., Union, N. J. Owner Builds, $6,000,000, 633 HOUSES on tract on Ernston Rd., SAYREVILLE, N. J.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 10 Florida
STREETS AND ROADS
September 10 Florida

▲ **Fla., St. Petersburg**—SEWAGE TREATMENT PLANT—B.A. 9/24—City, City Hall, sewage treatment plant at Albert Whitted Airport. $1,500,000. Smith & Gillespie, P.O. Box 1048, Jacksonville, engrs. CD 3/6.

BIDS ASKED—BUILDINGS

▲ **Va., Arlington**—SCHOOL—B.A. 9/17—Arlington Co. School Bd., 1426 N. Quincy St., 2 story, masonry Williamsburg Junior High School, $1,730,000, Rhees E. Burket, 1223 Conn. Ave. N.W., Wash., D. C., archt. Beail & LeMay, 1726 M. St., Wash., D. C., engrs. CD 1/12.

SOON LETS CONTRACT—BUILDINGS

▲ **Ala., Gorgas**—PLANT SUBSTRUCTURE—Alabama Power Co., 600 N. 18 St., Birmingham, soon lets contract substructure for steam electric plant. $2,000,000. CD 11/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—State Hy. Dpt., 1221 E. Broad St., Richmond. Own Forces. $800,000. grading, drainage, 100 ft. bridge 3.58 mi. Rte. 60, Proj. 21-3-07-08, Alleghany Co., CD 8/24, under LB.
† **Wm. S. Smith Constr. Co.,** P.O. Box 876 Jacksonville, Fla., CA, $832,959, disassembly hangar and cleaning bldg., U.S. Naval Air Station, NOY 75237, JACKSONVILLE, FLA. Dist. P. Wks. Office. Dpt. Navy, Chalreston, S. C. Bids Aug. 19. CD 8/27, under LB.
▲ **J. E. Milam Constr. Co.,** 8940 1 Ave. S., Birmingham, Ala., CA, $1,485,300 sanitary sewer lines, MOBILE, ALA. City, Mobile, Ala. Blds Aug. 19. CD 8/25.
Sullivan, Long & Hagerty, 2026 2 Ave., Bessemer, Ala., LB, $751,615, sanitary sewers, PRICHARD, ALA. City, Prichard, Ala. Bids Aug. 24. CD 8/21.
Wright Contg. Co., 502 Cooledge Ave., Columbus, Ga. CA $987,647. intercepting sewers, Contrs. 4 and 5, CHATTANOOGA, TENN. City, City Hall, Chattanooga, Tenn. CD 8/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Lang Constr. Co.,** P.O. Box 472, Hampton, Va. CA $1,857,000. SCHOOL and TRAINING BLDG., Naval Amphibious Base, NOY 75737, Spec. 36500, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. CD 8/20, under LB.
▲ **Thorington Constr. Co., Inc.,** 2106 N. Hamilton St., Richmond, Va. CA $1,000,000. 8 story, 60,000 sq. ft. OFFICE, RICHMOND, VA. Willow Lawn Corp., c/o Harrison & Bates, 723 E. Main St., Richmond, Va. J. Albert Heisler, 3 W. Cary St., Richmond, Va., archt.
John W. Daniels & Co., Danville, Va., CA, $753,739 two SCHOOLS, YORKTOWN, VA. York County School Bd., Yorktown, Va. Bids Aug. 20. CD 7/27.
▲ **Jones Bros. & Co.,** Wilson, N. C. LB $1,182,000. HOSPITAL, FAYETTEVILLE, N. C. Cumberland Co., Fayetteville, N. C. Bids Aug. 20. CD 7/16.
▲ **Daniel Constr. Co.,** P. O. Box 2286, Greenville, S. C. CA $1,484,905. Newspaper Printing PLANT, COLUMBIA, S. C. The State Co., 1220 Main St., Columbia, S. C. Bids Aug. 18. CD 7/27.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ILLINOIS—State Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,
C. E. Tillmarr Co., Inc., 702 N. Locust St., Centralia, Ill. CA $753,568. substructure and erect structural steel and 1 highway grade separation and paved approaches for railroad subway on Ill. 161, Marion Co. Bids Aug. 7, awarded Aug. 23. CD 8/11, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Wm. Hardt & Assocs.,** Dundee Twp., Ill. Owner Builds, $5,000,000, 500 HOMES near Lake Marion in the Woods near DUNDEE, ILL.
▲ **Berry & McHugh,** 6449 S. Park Ave., Chicago, Ill., Owner Builds. $10,000,000, 300 HOMES with sanitary and storm sewers, paving and water supply, FLOSSMOOR, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.
▲ **Greene & Gust Co.,** 1635 Grace St., Franklin Park, Ill., LB, $2,000,000 Leydon Twp. High SCHOOL, FRANKLIN PARK, ILL. School District 220, 3400 Rose St., Franklin Park, Ill. Bids Aug. 21. CD 7/14.
† **Campbell Constr. Co.,** 9301 Michigan Ave., Detroit, Mich. CA $514,579. prefabricated, masonry storage WAREHOUSE, ENG-20-064-54-5, LIVONIA, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids July 30.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 9 Oklahoma September 22 Kansas
STREETS AND ROADS
September 9 Oklahoma

▲† **Neb., Lincoln**—HANGAR—B.A. 9/29—Ninth Naval Dist., Great Lakes, Ill., hangar, $2,200,000; paving, utilities, $648,000, Naval Air Base. CD 12/8.

SOON LETS CONTRACT—BUILDINGS

▲ **Tex., Dallas**—BANK and OFFICE, etc.—Texas Bank & Trust Co., Main and Lamar Sts., soon lets contract masonry bank and office alterations and remodeling, $675,000; 4 story bsmnt. auto drive-in parking garage, $600,000. Plans deposit $25. W. G. Knoebel & Wm. E. Dady, 906 Sidney St., St. Louis, Mo., archts. CD 1/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

M. K. Eby Constr. Co., Inc., 610 N. Main St., Wichita, Kan. CA $998,490. general contract terminal bldg. municipal Airport, WICHITA, KAN. City, City Hall, Wichita, Kan. CD 8/11, under LB.
▲ **TEXAS**—State Hy. Comn., Austin,
Campbell & Kay, P.O. Box 836, Tyler, Tex. LB $120,639. replacing of 0.129 mi. approach spans to Brazos River Bridge on Hy. U.S. 290, Proj. C 114-11-21, Washington and Waller Counties.
John F. Buckner & Sons, P.O. Box 76, Cleburne, Tex. LB $1,140,554. Sulphur River Bridge and approaches grading, structures, flexible base 4.07 mi. Hy. SH 8, Proj. C 62-1 & 2 8 & 6, Bowie and Cass Counties. Bids Aug. 19. CD 7/23.
Lone Star Gas Co., 1915 Wood St., Dallas, Tex. Owner Builds. $838,000. 36 mi. 12 in welded joint gas transmission line from Stamford to Abilene, TEXAS. CD 6/19/50.

BUILDINGS

LOW BIDS AND CONTRACTS

C. T. Wilson, 10401 Tringate Pl., Baden 15, Mo. CA est. $826,448. one hundred and twelve 1 story, 24x34 ft., frame RESIDENCES, Shepley Dr., Dunkell Circle and Prestwick Dr., BADEN (ST. LOUIS 15 P. O.), MO. Glasgo Village Development Co., 10401 Tringate Pl., Baden 15, Mo.
Swan Constr. Co., 8615 Laclede Station, Affton 23, Mo. LB $765,796. general contract, stone, masonry, steel, concrete, H-shaped High SCHOOL, 8600 MacKenzie Rd., AFFTON (ST. LOUIS 23 P. O.), MO. Affton School Dist. Bd. Educ., Charles J. Mesnier, supt. Schools, 8520 MacKenzie Rd., Affton 23, Mo. Bids Aug. 17. CD 7/22.
▲† **Kerr-McGee & Co.,** Kerr-McGee Bldg., Oklahoma City, Okla. CA Est. $3,000,000. uranium ore processing PLANT, SHIPROCK, N. M. Atomic Energy Comm., 1901 Constitution Ave. N. W., Wash., D. C. Awarded Aug. 21.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 11 California
STREETS AND ROADS
September 17 California

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Guy F. Atkinson Co.,** 10 W. Orange Dr., South San Francisco, Calif. CA, $7,162,800, Cherry Valley Dam, Cherry River Proj. HHWC 259, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids Aug. 18, awarded Aug. 26. CD 8/21, under LB.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

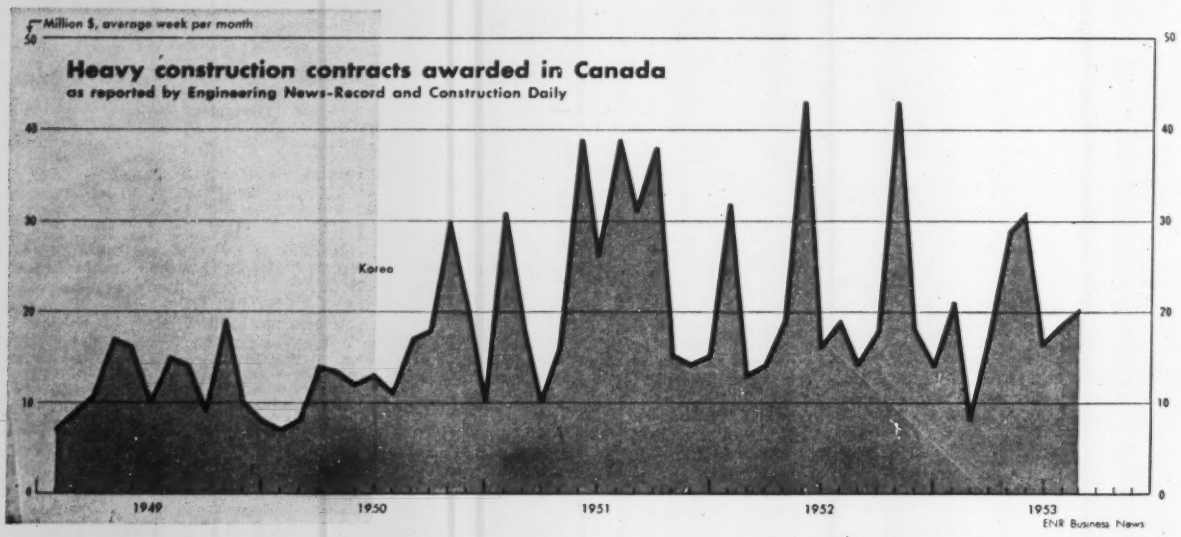
Desourdy Constr. Ltd., 143 North St., Cowansville, Que., CA, $800,000, rein.-con., masonry RECREATION and SOCIAL CENTRE, MONTREAL, QUE. Centre Marie Goretti, c/o Rev. Alfred Laplante, Decelles Ave., Montreal, Que. Lalonde & Valois, Canada Cement Bldg., Montreal, Que., engrs. E. Courchesne, 3057 Lacombe Ave., Montreal, Que., archt.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Alaska**—OIL PIPE LINE—B.A. 10/14—U. S. Eng., 3013 Arcade Bldg., Seattle 1, Wash., 615 mi. oil pipe line Haines to Fairbanks, $40,000,000. CD 11/25.

(Proposal Advertisements see pp. 101 to 104)



Private work in Canada climbs, but public contracts are off

Because of a 23% drop in awards for public work during the first eight months of this year, heavy construction in Canada continues its slow decline (ENR Apr. 30, p. 80). Contract awards reported by ENGINEERING NEWS-RECORD and the Construction Daily totaled about $715 million for the first eight months, about 7% below the similar 1952 period. At the end of the first four months of this year, contract volume was running only 3% behind last year.

The chart (above) shows the trend of awards on the basis of the average week in each month. Early this year, awards dropped to the lowest point they have reached since the Korean war started. Since then they have improved, but have not come anywhere near the peaks to which they rose in 1951 and 1952.

• **Bright spot**—The bright spot in the Canadian picture is private construction, which totaled $715 million, 3% ahead of 1952 for the first eight months. The increase has been caused by big gains in mass housing and commercial building awards. Industrial and unclassified work are off. In the public construction field, total awards were $237 million as compared with $309 million last year. The decline would have been much worse had it not been for a sharp gain that occurred in highway awards.

In private construction, mass housing awards reached $146 million, up 47%. Commercial building awards were $73 million, up 127%. Industrial awards, the largest category in the private field, totaled $151 million, down 8%. However, August was a good month for industrial awards. At the end of the first seven months, they were down 18% from the same period last year. The biggest drop is in the unclassified category—mainly pipelines and transmission lines. Volume of awards in this field was $108 million, a drop of 35%.

In public work, highway construction was the only category to show a substantial gain. The total here was $51 million, a 70% rise compared with last year. Sewerage and building (nonhousing) contracts were also up slightly. But there were sharp drops in earthwork and waterways, public housing, bridges, and unclassified work.

• **Backlog**—In spite of the decline in public awards, construction men will be kept busy in Canada for a long time to come, judging by ENR's backlog, for this is still growing at a fast rate. At the end of July, it stood at $11.8 billion, a gain of about 10% in twelve months.

Nearly all of this growth is accounted for by private projects, which are mainly in the commercial building and mass housing categories. Backlogs of industrial building and unclassified work have gained only slightly.

In the backlog for public works, proposed highway and street projects totaled $1,484 million at the end of July, a decline from $1,514 million the year before. Building projects, another major category, increased slightly, from $1,669 million to $1,731 million. All other types of public work were up slightly, except for waterwork, where the backlog declined a little from the July 1952 level.

U. S. ends cement case, but antitrust goes on

The dismissal last week of the Justice Department's eight-year-old suit against the Cement Institute and 89 cement companies doesn't mean a major change in antitrust policy of the department.

Stanley H. Barnes, chief of the Antitrust Division, says that the primary purposes of filing the suit already have been achieved. The Cement Institute has been dissolved, and basing-point pricing and identical bids on government contracts are pretty much abandoned, says Barnes. These actions followed the success of a Federal Trade Commission case against the same companies, which was upheld by the Supreme Court. The Justice Department's case has never come to trial.

Barnes warned, however, that very few of the Antitrust Division's pending cases—including a number involving building materials manufacturers—will be dismissed in this fashion.

Mortgage record

In spite of higher rates, new home mortgages climbs, FRB reports

Although mortgage money was more expensive during the first half of this year than it has been for some time, lending on residential mortgages reached a new high. That's the word from the Federal Reserve Board, which reports that a total of $9.6 billion was loaned on mortagages of $20,000 or less.

The breakdown of this total is interesting.

About $3 billion was used in the purchase of new homes, compared with $3.2 billion in the last half of 1952 and the record high of $3.7 billion in the last half of 1950. A new high of $4.2 billion was borrowed to purchase existing properties. And home owners borrowed about $2 billion, more than ever before, for other purposes by obtaining mortgages on their properties.

Total home mortgage debt, FRB estimates, is now $61.5 billion, a rise of about $3.4 billion during the first six months of this year. The total is now more than three times what it was at the end of World War II, and makes up about two-thirds of all mortgage debt.

The difference shown between the net rise of $3.4 billion and the $9.6-billion total in new mortgages is largely accounted for by payments on outstanding mortgages, including regular amortization.

FRB figures indicate clearly that savings and loan associations are becoming the major lenders on home mortgages.

During the first half of 1953, they increased their portfolios by a record $1.6 billion, compared with $0.7 billion for life insurance companies, $0.7 billion for mutual savings banks, and $0.4 billion for commercial banks.

AEC says its spending will rise through 1953

It's no news that the development of atomic energy has meant a great deal of business for the construction industry, and will mean a lot more in years to come.

But some of the figures published in the Atomic Energy Commission's semi-annual report give an idea of the potential business in this field.

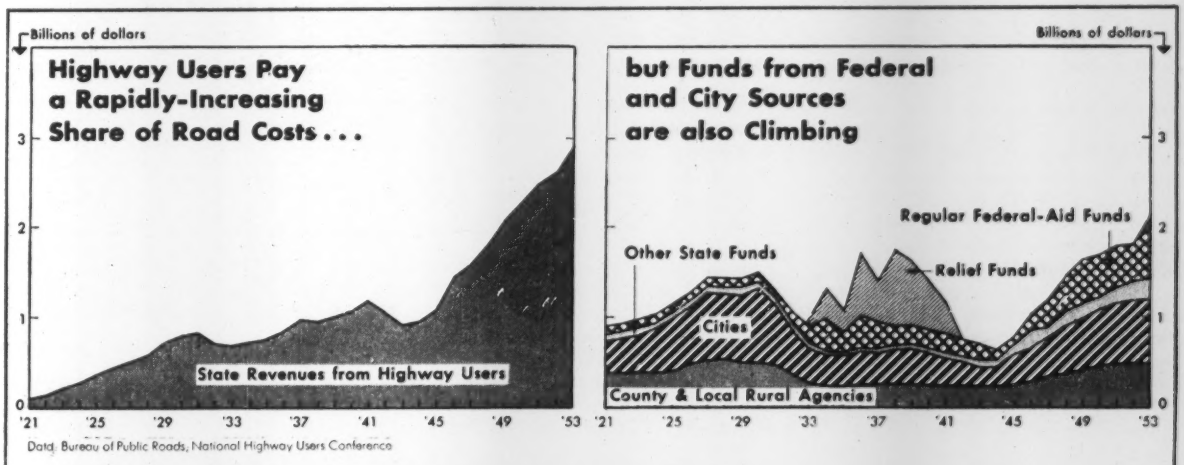
AEC reports that during the first half of this year it spent an average of $92 million a month on plant and equipment, which accounted for about 3% of total expenditures for new construction in the U. S. It expects that monthly expenses will increase gradually during the second half of this year, reaching a peak of about $130 million sometime early next year.

By that time, AEC figures, its program will account for about 5% of total expenditures for new construction.

According to AEC, the U. S. had invested about $4 billion in atomic energy plant facilities up to the start of 1953.

That figure is approximately equal to the plant and equipment investment of U. S. Steel Corp., before depreciation.

Up to the conclusion of the fiscal year which ended July 31, another $3.5 billion had been authorized for AEC construction.



Data: Bureau of Public Roads, National Highway Users Conference

Users are financing highway expansion

The highway user, rather than the taxpayer, is now providing the bulk of the money for building and maintaining highways and streets. This year, state gasoline taxes and tolls will account for 58% of highway and street funds, according to an estimate by the National Highway Users Conference based on Bureau of Public Roads data.

This doesn't include proceeds from the federal gasoline tax and automobile excise tax, handed over to the states in the form of federal-aid funds. They will account for 10% of the money spent on roads in 1953.

Back in 1921, state revenues from highway users were about 12% of the money spent on roads; and federal-aid funds were about 4%. The gain in the percentage provided by user revenues has been particularly rapid since World War II, as the left chart (above) shows.

However, as far as dollar volume is concerned, funds from all other sources are also increasing (right chart). The biggest gain since World War II is in regular federal-aid funds and in money spent by cities. But county and local rural road agencies are also spending more money, and state governments are using more money from non-user sources than they ever had before.

Only one syndicate left to bid on housing bonds

When the Public Housing Administration offers $125 million in bonds of local housing authorities later this month, it may not find much competition among investment bankers. The effect may be to boost borrowing costs.

Since PHA started selling these issues about two years ago, two big underwriting syndicates have been bidding against each other. One was the "bank-dealer" group, headed by New York's Chemical Bank & Trust Co., and including about 200 banks and investment firms. The other was the "dealer" group, headed alternately by Phelps, Fenn & Co., Blyth & Co., Inc., and Lehman Bros. Last week, the bank-dealer group said it had decided to break up.

It won't bid for the PHA-backed issues any more, because it believes PHA has been offering its bonds so often that the market doesn't absorb the issues properly.

Since July 1951, PHA has sold six issues at intervals of from three to eight months, and totaling about $888 million altogether. The bank-dealer syndicate has been advising PHA to sell its bonds at longer intervals, in larger amounts. It believes that if the issues were spaced further apart, they would find permanent buyers more quickly. As it is now, the likelihood that another issue will be coming in a few months makes investors less eager to buy.

Wall Streeters in the bank-dealer group say that another reason why it broke up is the tremendous volume of municipal issues likely to come to market before the end of the year. Scheduled for sale within a few months are: $225 million of Indiana Toll Road bonds; $200 million Massachusetts Turnpike bonds; a $135-million issue by the Garden State (N. J.) Parkway; $130 million by the New Jersey Turnpike. And there are many smaller issues.

Building materials rise, machinery levels off

Government reports show conflicting trends during July in prices of building materials and construction machinery. According to the indexes kept by the Bureau of Labor Statistics, construction machinery prices leveled off after a four-month rise. While prices of building materials made their biggest gain this year.

The BLS index for all construction machinery and equipment in July stood at 129.6 (1947-49=100). There was no change in July, though prices had been slowly rising since price controls ended last February. Compared with July 1952, the index has risen 3%. The only category which showed any increase at all was mixers and pavers, which edged up 1%.

• **Biggest gain**—In building materials, the 1% gain during July in the BLS index was the largest so far this year. Building materials prices also average 3% above July 1952.

Most of the July rise was accounted for by big boosts in a few items. Structural steel shapes were up 6%; structural clay tile, up 5%, metal doors, sash and trim, up 7%; and plumbing equipment, up 3%.

Compared with July 1952, all building materials used in the BLS index are higher than in July 1952, except for lumber, paint, and plumbing equipment, which are at the same level or slightly below a year ago. The biggest gains have been in structural steel shapes (up 11%) and finished hardware (up 10%).

Business briefs . . .

• **Savings keep climbing**—The National Association of Mutual Savings Banks reports that deposits in July gained $112 million, a record for the month since the association started keeping figures in 1947. It says that during every month of this year, except May, the increase in deposits has been a record for that month. Shareholdings in savings and loan associations are also increasing fast. A sizable proportion of these funds will be invested in mortgages.

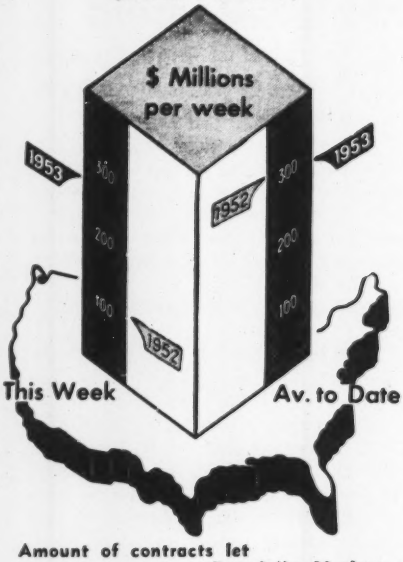
• **Steel shipments down**—July shipments of fabricated structural steel dropped 19% below June, according to the American Institute of Steel Construction. Bookings during July were 8% below June. For the first seven months, shipments are up 19% over last year; bookings are up 20%.

• **Stock sale**—Pacific Gas & Electric Corp., plans to sell about $75 million of common stock, of which about $60 million will be put into its current $400-million construction program.

• **More financing**—Other utilities plan construction financing: Kansas Gas & Electric Co., plans to sell $5 million of preferred stock, $10 million in bonds. Indiana & Michigan Electric Co., plans to sell $15 million in bonds and $7 million in preferred stock. New York State Electric & Gas Corp., will raise about $11 million in common.

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	This Week	Cumulative 36 wks 1953	Cumulative 36 wks 1952	% chge
Federal	$32.8	$1,098.0	$3,743.8	−71
State and municipal	74.1	3,500.0	2,924.2	+20
Total pub.	106.9	4,598.0	6,668.0	−31
Total priv.	166.6	6,021.4	4,745.7	+27
U. S. total	**$273.5**	**$10,619.4**	**$11,413.7**	**−7**
Contracts by type of work				
Waterworks	$2.7	$171.4	$159.3	+8
Sewerage	7.7	282.2	201.9	+40
Bridges	7.5	518.4	269.2	+93
Highways	32.8	1,229.0	1,068.7	+15
Earthwork, waterways	10.8	293.3	348.5	−16
Buildings:				
Public, excl. hsg.	25.3	1,192.5	3,564.4	−67
Housg., pub.	1.0	313.8	491.4	−36
Housg., priv.	103.8	2,553.5	2,066.7	+24
Commercial	17.7	858.3	420.1	+104
Industrial	39.0	1,922.2	1,907.9	+1
Unclassified	25.2	1,284.8	915.6	+40
Total	**$273.5**	**$10,619.4**	**$11,413.7**	**−7**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Week of Aug. 27 1953	Cumulative 35 wks 1952	% chge '52-53
Corporate securities	$31.2	$3,215.6	+23
State & municipal:			
Excluding housing	87.3	2,933.8	+34
Housing	...	212.8	+8
Federal loans	0.5	84.4	−72
Federal aid	8.2	770.9	+40
Total non-federal	**$127.2**	**$7,217.4**	**+24**
Federal approp.:			
In U. S.	$34.1	$1,566.7	−77
Outside U. S.	0.1	28.9	−84
Total new capital	**$161.3**	**$8,813.0**	**−31**

ENR indexes		1953	Base Years = 100 1913	1926	1949
Construction cost	Aug	611.87	294.13	128.27	
	Jul	604.10	290.39	126.64	
Building cost	Aug	437.05	236.26	124.24	
	Jul	435.28	235.19	123.73	
Volume	Jul	447	182	129	
cost	Jun	572	233	165	

OFFICIAL PROPOSALS

Bids: September 15, 1953

Construction of Plumbing System

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10.00 A.M. (Eastern Daylight Saving Time) the 15th day of September 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud, for each of the following two groups of contracts:

For the construction of Plumbing System for the Utility Building and Toll Plaza at each of the interchanges listed below in each group:

GROUP I

Contract No.	Interchange	Connecting Route	County
420-A	Valley Forge	U.S. 202	Montgomery
421-A	U.S. 422	U.S. 422	Montgomery
422-A	U.S. 309	U.S. 309	Montgomery

GROUP II

Contract No.	Interchange	Connecting Route	County
423-A	U.S. 611	U.S. 611	Montgomery
424-A	U.S. 1	U.S. 1 (New)	Bucks
425-A	U.S. 13	U.S. 13	Bucks

The work to be performed under each of these two groups of contracts consists of the construction of Plumbing System for the Utility Building and Toll Plaza and all work incident thereto at each of the three interchanges listed under each group. The Utility Buildings and Toll Plaza are to be constructed by others. Heating and Electrical Work will be installed by others.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after August 26, 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania; at the Commission's field office in Conshohocken, Pennsylvania, 10th. Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street.

Plans and Contract Documents which cover both groups of contracts may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of Five ($5.00) Dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
19 August 1953

Bids: September 15, 1953

Paving & Drainage

Sealed proposals will be received by the West Virginia Turnpike Commission for: CONTRACTS NOS. 30, 30A, 30B, 30C, 30D

The work to be done under this Contract consists in performing the required Paving and Drainage for approximately 30 miles of the West Virginia Turnpike, including curbs, gutters, toll plaza, and miscellaneous items to complete the project, ready for traffic. This work is located between Ghent, Mile 20, and Mossy, Mile 50, Raleigh and Fayette Counties, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

Contract 30	Approximate Quantity Rigid Type Alt. 1	Flexible Type Alt. 2
Rigid Pavement, Alternate 1		
Cement concrete pavement	580,000 s. y.	
Flexible Pavement, Alternate 2		
Asphaltic concrete pavement		100,000 tons
Other Items		
Culvert pipes and underdrains	13,000 l. f.	13,000 l. f.
Select subbase	1,000,000 tons	1,000,000 tons
Macadam base aggregate	43,000 tons	250,000 tons
Emulsified asphalt	675,000 gals.	3,800,000 gals.

Quantities tabulated above are divided approximately as follows:
30A — 25%, 30B — 30%, 30C — 24%, 30D—21%

Proposals will be accepted on either rigid or flexible types or on both types of pavement. The Commission reserves the right to award either type on any contract or part of a contract at its sole discretion.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on September 15, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMIS.
August 15, 1953 D. H. Morton, Chairman

Bids: September 22, 1953

Contract No. 32, 32A, 32B, 32C

Contract No. 32 comprises the paving, drainage and miscellaneous construction of approximately nineteen and seven tenths (19.7) miles of Turnpike between Mile 68.3 (Station 1463+14) at the Standard Tunnel, near the town of Standard, Kanawha County, and Mile 88.0 (Station 89+12, Ramp F) Charleston, Kanawha County, West Virginia. Included in Contract No. 32 are the Chelyan, Kanawha City and Charleston Interchanges.

Contract No. 32 consists of the combined quantities of Contract No. 32A, 32B, and 32C.

The Principal Items of Work Include:

	Approximate Quantities 32A	32B	32C	
Alernate No. 1 (Rigid Pavement)				
Select Subbase	238,000	210,000	240,000	Tons
Portland Cement Concrete	130,000	107,000	132,000	Sq. Yds
Macadam Base Aggregate	6,000	5,000	4,000	Tons
Emuisified Asphalt	182,000	139,000	132,000	Gals.
Alternate No. 2 (Flexible Pavement)				
Select Subbase	236,000	208,000	238,000	Tons
Macadam Base Aggregate	51,000	41,000	50,000	Tons
Asphaltic Concrete Binder Course	14,000	12,000	15,000	Tons
Asphaltic Concrete Wearing Course	7,000	6,000	7,000	Tons
Emulsified Asphalt	888,000	719,000	848,000	Gals.
Other Items (Incuded in Both Alternates)				
Culvert Pipe and Storm Sewer	3,500	3,000	4,000	L. F.
Underdrains	7,500	12,500	6,000	L. F.
Toll Plazas	0	1	2	each

Proposals will be received at the office of the West Virginia Turnpike Commissoin, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on September 22, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton, Chairman

August 24, 1953

Bids: September 15, 1953

Readvertisement

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

ALLAMUCHY-HACKETTSTOWN ROAD
Construction of a portion of Allamuchy-Hackettstown Road from end of existing concrete running southerly toward Hackettstown, in Allamuchy Township, Warren County, Federal Aid Secondary Project No. S-7(4). Length 0.435 mile.

The principal items of construction are: Estimated:
1,758 cu. yds. Roadway Excav.-Unclassified
852 cu. yds. Subbase
5,101 sq. yds. 8" Plain Concrete Pavement

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, September 15, 1953, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 18 E. Blackwell Street, Dover, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Ave., Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: A. Lee Grover, Chief Clerk
State Highway Department

Bids: September 15, 1953

Construction of Electrical System

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Daylight Saving Time) the 15th day of September 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read

(Continued on page 102)

OFFICIAL PROPOSALS

aloud, for each of the following two groups of contracts:

For the construction of Electrical System for the Utility Building and Toll Plaza at each of the interchanges listed below in each group:

GROUP I

Contract No.	Interchange	Connecting Route	County
420-C	Valley Forge	U.S. 202	Montgomery
421-C	U.S. 422	U.S. 422	Montgomery
422-C	U.S. 309	U.S. 309	Montgomery

GROUP II

Contract No.	Interchange	Connecting Route	County
423-C	U.S. 611	U.S. 611	Montgomery
424-C	U.S. 1	U.S. 1 (New)	Bucks
425-C	U.S. 13	U.S. 13	Bucks

The work to be performed under each of these two groups of contracts consists of the construction of Electrical System for the Utility Building and Toll Plaza and all work incident thereto at each of the three interchanges listed under each group. The Utility Buildings and Toll Plaza are to be constructed by others. Plumbing and Heating will be installed by others.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after August 26, 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania; at the Commission's field office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street.

Plans and Contract Documents which cover both groups of contracts may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of Five ($5.00) Dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
19 August 1953

Bids: September 22, 1953

Route 30 (1927) Route 69 (1953), Sec. 11

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 30 (1927) Route 69 (1953), Section 11, Oxford Repaving, in Township of Oxford, Warren County. Length 1.0 mile. The principal items of construction are:

Estimated:

Roadway Items

31,150 cu. yds. Roadway Excavation—Earth
5,000 cu. yds. Roadway Excavation—Rock
9,600 sq. yds. Pavement Excavation
24,125 sq. yds. Macadam Base Course, 8" thick
24,125 sq. yds. Pavement, Type MA-BC-2, 3" thick
7,000 sq. yds. Gravel Shoulders, 8" thick (surface treated)
1,948 lin. ft. 18" Rein. Conc. Culvert Pipe
6,020 lin. ft. White Conc. Vertical Curb
2,800 lin. ft. Wire Rope Fence

Bridge Items

122 cu. yds. Concrete in Structures
7,450 lbs. Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, September 22, 1953, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by propective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the Standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: A. Lee Grover, Chief Clerk
State Highway Department

Bids: September 17, 1953

NOTICE TO BIDDERS

Sealed bids for the construction of Watermains and Storage Tank, will be received by the Board of Water Commissioners of the Sea Breeze and Vicinity Water District of the Town of Irondequoit, Monroe County, New York, at the Irondequoit Town Hall until 2 o'clock P.M., E.D.T. on the 17th day of September, 1953.

Bidding forms can be obtained and plans and specifications examined at the office of the Board of Water Commissioners at 4441 Culver Road, Sea Breeze, or the office of William S. Lozier Company, Engineers, 10 Gibbs Street, Rochester, New York.

Copies of plans and specifications for Contract "A" and "B" may be obtained upon the payment of ten dollars ($10.00) for each set, which will not be refunded.

The work consists of the construction of:

CONTRACT "A"—85,000 feet of 8 inch and smaller watermains with connections and appurtenances.

CONTRACT "B"—500,000 gallon steel elevated water storage tank and tower.

William A. Barker
John B. Phillips
Arnold E. Briddon
BOARD OF WATER COMMISSIONERS
August 27, 1953

Bids: September 15, 1953

Construction of Utility Building & Toll Plaza

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg Pennsylvania

Notice to Bidders

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Daylight Saving Time) the 15th day of September 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud, for each of the following two groups of contracts:

For the construction of Utility Building and Toll Plaza at each of the interchanges listed below in each group.

GROUP I

Contract No.	Interchange	Connecting Route	County
420	Valley Forge	U.S. 202	Montgomery
421	U.S. 422	U.S. 422	Montgomery
422	U.S. 309	U.S. 309	Montgomery

GROUP II

Contract No.	Interchange	Connecting Route	County
423	U.S. 611	U.S. 611	Montgomery
424	U.S. 1	U.S. 1 (New)	Bucks
425	U.S. 13	U.S. 13	Bucks

The work to be performed under each of these two groups of contracts consists of the construction of the Utility Building and Toll Plaza and all work incident thereto at each of the three interchanges listed under each group; not including, however, the Plumbing, the Heating System, the Electrical work or the Seeding and Sodding, except as noted in the specifications or as shown on the contract drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after August 26, 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's field office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street.

Plans and Contract Documents which cover both groups of contracts may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within fice (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of Five ($5.00) Dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
19 August 1953

Bids: October 14, 1953

River Tunnel, New Jersey Rock Tunnel and Ventilation Shaft

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
THIRD TUBE
CONTRACT LT-160.006

Sealed proposals for the construction of the River Tunnel, New Jersey Rock Tunnel and Ventilation Shaft for the Third Tube of the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on the afternoon of Wednesday, October 14, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $100.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 3, 1953

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: September 17, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 17th day of September, 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1 G. L. NICKERSON, District Engineer, 353 Broadway, Albany, N. Y.				
		DISTRICT No. 2 L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica, New York				
		DISTRICT No. 3 WILLIAM ROBINSON, District Engineer, 301 E. Water Street, Syracuse, N. Y.				
		DISTRICT No. 4 E. G. H. YOUNGMANN, District Engineer, Barge Canal Terminal, Rochester 1, N. Y.				
		DISTRICT No. 5 C. R. WATERS, District Engineer, 65 Court Street, Buffalo, N. Y.				
		DISTRICT No. 8 J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.				
Albany, Greene, Schen. Herk., Mad. Mont., Oneida, Cay., Onon. Seneca, Gen., Monroe, Ont., Erie, Oran. Rock., Ulster, West.	T.T.B.53-1	New York State Thruway-Hudson-Catskill-Mohawk & Ontario Sects. Toll Plaza Booths	...	Fabricate, Deliver & Erect 117 Toll Booths	$35,000 Plans $25	$680,000
		DISTRICT No. 2 L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica, New York				
Herkimer	RC 53-116	Mohawk Village, S.H. 5170-CA (Br. No. 1)	....	Painting 1 bridge	$600 Plans $10	11,000
		DISTRICT No. 3 WILLIAM ROBINSON, District Engineer, 301 E. Water Street, Syracuse, N. Y.				
Onondaga	FAC 53-18	Syracuse City: Adams Street Project U-446(4)	0.35	Asp. Conc. Ty. 2A = 0.31 Mi. Misc. Work. = 0.04 Mi.	$12,000 Plans $10	202,000
Onondaga	FASS 53-14	De Witt-Cicero (Thompson Rd.) Co. Rd. 13 Project S-403(1)	0.98	Asp. Conc. Ty. 2A = 0.978 Mi. Misc. Work = 0.002 Mi.	$14,000 Plans $10	246,000
		DISTRICT No. 7 R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, New York				
Franklin	FARC 53-112	Malone-Moira Pt. 2, SH 5031 Project F-582(1)	0.14	Asp. Conc. Ty. 1A, Opt. = 0.11 Mi. Misc. Work = 0.03 Mi.	$2,500 Plans $10	48,000
		DISTRICT No. 8 J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.				
Rockland	HT 53-9 RC 53-118 ST 53-32	New York State Thruway-Hudson Sect.-Sub. 8 (Suffern-Nyack Pt. 3); Palisades Interstate Pkwy. Interchange.; 8 Misc. Sec. Rds.; Coyles Corners-Short Clove, SH 9005	4.82 (Acc.) 4.52 (Thy.)	9" Cem. Conc. Pavt. 2@25' Var. Wide = 4.79 Mi.; 8" Unreinf. Cem. Conc. Pavt. Var. Wide = 2.42 Mi. Asp. Conc. Ty. 1A, Opt. = 0.73 Mi. Grad. & Misc. Work = 1.04 Mi. N.Y.RR Relocation = 0.36 Mi. 7 Hy. Sepa. Comp. I-Beams 47', 218.8', 258.7', 259.6', 48.5', 90' & 251.4', 1 Br. Comp. I-Beam 62' 1 R.R.Sep. Comp. I-Beam 210'	$400,000 Plans $100	$7,449,000
Rockland	CT 53-12 RC 53-117 ST 53-31	New York State Thruway—Catskill Sect.-Sub. 7 (Suffern - Harriman Pt. 2); Rte. 17 Interchange; 4 Misc. Sec. Rds.; New Jersey State Line-Ramapo SH 1844	5.62 (Acc.) 1.89 (Thy.)	9" Cem. Conc. Pavt. 2@25' Var. Wide = 4.64 Mi.; 9" Unreinf. Cem. Conc. Pavt. Var. Wide = 2.56 Mi. Asp. Conc. Ty. 1A, Opt. = 0.23 Mi. Misc. Work, 0.08 Mi. 4 Hy. Sepa. Comp. I-Beams 161.1', 58', 218.8' & 125' Hy. Sep. I-Beam 246.8', Br. Built-up Beam 462.5 R.R. & Hy. Sep. Div. Comp. I-Beam 788', Ped. Br. Comp. I-Beam 149.5'	$550,000 Plans $100	10,046,000
Rockland	HT 53-10 RC 53-121 ST 53-33	New York State Thruway-Hudson Sect., Sub. 9A (Nyack Approach to Tappan Zee Bridge); Nyack Interchange; Access Ramps; New Jersey State Line — Nyack Pt. 3 & Pt. 4, SH 8136-5682; Nyack Village: Main St., SH 8459; Knapps Corners-Nyack, SH 5178 & Nine Misc. Secondary Cross Roads Including Relocation of Railroad Tracks	4.60 (Acc.) 1.57 (Thy.)	9" Cem. Conc. Pavt. 2 @ 37' Var. Wide = 1.57 Mi.; 9" Unreinf. Cem. Conc. Pavt. Var. Wide = 3.21 Mi. Asp. Conc. Ty. 1A, Opt. = 0.78 Mi. Relocation of Erie RR = 0.56 Mi. Misc. Work = 0.05 Mi. 6 Hy. Sepa. Comp. I-Beams 227.2' 60.2', 180.8', 215.6', 180.3' & 290.8'; R.R. Sep. Comp. I-Beam Thru. Gird. 286.3'	$400,000 Plans $100	7,765,000
Westchester	SMRP 53-2 RC 53-119	Sawmill River Parkway (Mt. Kisco-Katonah Pt. 2); Harris Road Interchange; Railroad Ave. Access Rd.; Mt. Kisco-Katonah, SH 1533	0.51 (Acc.) 2.68 (Rd.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide = 2.81 Mi.; Asp. Conc. Ty. 1A, Opt. = 0.38 Mi. R. R. Sep. Plate Girder 130', Hy.Sep. Comp. I-Beam 71' Br.I-Beam 57.1'	$150,000 Plans $50	2,527,000
		DISTRICT No. 10 M. E. GOUL, District Engineer, Montauk Highway, Babylon, L. I., New York				
Nassau-Suffolk	RC 53-115	Hempstead-Farmingdale, Pt. 1, SH 1799 Babylon-Bayshore, SH 743; Bayshore-Brookhaven Town Line, SH 5301	2.29	White Traffic Line Markers	$700 Plans $10	13,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

H. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: September 18, 1953

The Port of New York Authority

AIR CONDITIONING SYSTEM AND EXTENSION OF CHILLED WATER LINES
PORT AUTHORITY BUS TERMINAL
CONTRACT O & M 184

PROPOSAL NO. 222

Sealed proposals for furnishing all labor, material and equipment necessary for air conditioning system and extension of chilled water lines at the Port Authority Bus Terminal, 40th and 41st Streets, between 8th and 9th Avenues, New York, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M. (E.D.S.T.) on Friday, September 18, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Additional Proposals on Page 104

OFFICIAL PROPOSALS

Bids: September 29, 1953

NOTICE TO BIDDERS

Contract C-31
Contract C-32
Contract C-33
Contract C-31&32
Contract C-32&33
Contract C-31, 32&33

Sealed proposals will be received by the Ohio Turnpike Commission until 10:00 A.M., Eastern Standard Time, September 29, 1953 for the performance of each of the Contracts enumerated above.

The work covered by Contract C-31 consists generally of the construction of grading, drainage, structures, and paving of approximately 3.7 miles in Construction Section 31 of Ohio Turnpike Project No. 1, beginning at a point about 3,900 feet east of Thomas Road at Turnpike Centerline Station 514+20, and extending eastwardly to a point about 916 feet east of State Route 299 at Turnpike Centerline Station 708+79, all in Erie County, the interchange with State Route 250, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-32 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.1 miles in Construction Section 32 of Ohio Turnpike Project No. 1, beginning at a point about 4,321 feet west of Patten Tract Road at Turnpike Centerline Sation 298+02, and extending eastwardly to a point about 3,900 feet east of Thomas Road at Turnpike Centerline Station 514+20, all in Erie County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-33 consists generally of the construction of grading, drainage, structures, and paving of approximately 3.1 miles in Construction Section 33 of Ohio Turnpike Project No. 1, beginning at a point about 465 feet west of Billings Road at Turnpike Centerline Station 134+34, and extending eastwardly to a point about 4,321 feet west of Patten Tract Road at Turnpike Centerline Station 298+02, all in Erie County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contracts C-31&32, C-32&33 and C-31, 32&33, which cover various combinations of Construction Sections 31, 32 and 33, is the construction as above generally described for the individual Construction Sections in each combination contract.

In Construction Section 31, the principal structures to be built are three box culverts, three single bridges and three twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). One of the single bridge structures of three spans and two of the twin bridge structures of three to four spans each are steel girder bridges. Two of the single bridge structures of four spans each and one of the twin bridge structures of three spans are steel beam bridges. All of these bridges are supported on reinforced concrete abutments and bents. The abutments of all of the bridges are to be supported on steel bearing piles. The bents of one bridge are to be on spread footings and the bents of the remaining bridges are to be on steel bearing piles.

In Construction Section 32, the principal structures to be built are two box culverts, two single bridges and two twin bridges (each twin bridge consisting of two separate but nearly identical parallel structures). All of these bridges are steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments of all these structures are to be supported on steel bearing piles. The bents of all these bridges are to be on spread footings.

In Construction Section 33, the principal structures to be built are four box culverts, two single bridges and three twin bridges (each twin bridge consisting of two separate but nearly identical parallel structures). All of these bridges are steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments of all these bridges are to be supported on steel bearing piles. The bents of these bridges are to be on spread footings.

Approximate quantities of the major items of construction for Contract C-31 are as follows:

Roadway Excavation..	399,000 cubic yards
Borrow	1,164,000 cubic yards
Structural Concrete...	12,000 cubic yards
Reinforcing Steel.....	1,618,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	2,670,000 pounds
10" Reinforced Concrete Pavement	130,000 square yards

Approximate quantities of the major items of construction for Contract C-32 are as follows:

Roadway Excavation..	82,000 cubic yards
Borrow	839,000 cubic yards
Structural Concrete...	3,700 cubic yards
Reinforcing Steel.....	453,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	609,000 pounds
10" Reinforced Concrete Pavement	113,000 square yards

Approximate quantities of the major items of construction for Contract C-33 are as follows:

Roadway Excavation.	142,000 cubic yards
Borrow	694,000 cubic yards
Structural Concrete...	7,500 cubic yards
Reinforcing Steel.....	1,150,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	1,450,000 pounds
10" Reinforced Concrete Pavement	84,000 square yards

For each Contract, fabricated structural steel and structural expansion and/or contraction joints will be furnished by the Commission.

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1.....	$ 5.00
Plans (also soil profiles and boring logs), per set, per construction section	15.00
Cross Sections, per set, per construction section	25.00

Forms or copies of all remaining Contract Documents, including Proposals for each of the Contracts set forth above; the Affidavit which must accompany any such Proposal; this Notice to Bidders; the Special Provisions applying to said Contracts; the Contract to be entered into with the (or each) successful Bidder; and the Contract Bond to be furnished with such Contract, will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office.

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a certified check or checks on a solvent bank or banks, payable to the order of the Ohio Turnpike Commission in an amount not less than $100,000 per Construction Section covered by the Contract on which the Bidder bids. If the Bidder shall tender bids for more than one Contract, said amount shall be not less than $100,000 per Construction Section covered by the Contracts on which he shall tender Proposals; provided, however, that if one or more Construction Sections are included in more than one Contract for which the Bidder shall tender Proposals, the Bidder need furnish only $100,000 per each such section, notwithstanding such duplication. The Commission may at any time cash any such check. Each such check or the proceeds thereof will be held by the Commission as a guaranty that, if any Proposal guaranteed thereby is accepted, a Contract will be entered into and the performance of the Proposal secured.

Each such check or the proceeds thereof will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications, provided that if there be a forfeiture, it shall be of an amount equal to $100,000 per Construction Section covered by the Proposal with respect to which the forfeiture occurs, and any excess will be returned to the Bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, September 29, 1953, in the offices of the Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where all Proposals will be publicly opened and read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

OHIO TURNPIKE COMMISSION

Bids: September 10, 1953

New York State

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 10th day of September, 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: in HERKIMER COUNTY.

Lacy Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.

Contract No.	Type	Name of Highway and Miles	Deposit for Plans	Bid Deposit	Department Estimate
M.T.53-13 Cont. #1	9" Cem. Conc. Pavt. 2 at 25' Wide Hy. R.R. Sep. Comp. Girder and I Beam 776.4' (Excl. of Steel Superst.)	New York State Thruway-Mohawk Sect-Sub. 10B (East Schuyler-Fort Herkimer) 0.22 Mile	$25	$80,000	$1,112,000
M.T.53-13 Cont. #2 Cont. #2	Steel Superst. for HY. RR. Sep. Comp. Girder and I-Beam 776.4'	New York State Thruway-Mohawk Sect.-Sub. 10B (East Schuyer-Fort Herkimer) 0.15 Mile	$25	$82,000	$1,507,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, wihtin 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Eech proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

B. D. TALLMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS
(Continued from page 104)

Bids: September 15, 1953

Construction of Heating System

PENNSYLVANIA, TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Daylight Saving Time) the 15th day of September 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud, for each of the following two groups of contracts:

For the construction of Heating System for the Utility Building and Toll Plaza at each of the interchanges listed below in each group.

GROUP I

Contract No.	Interchange	Connecting Route	County
420-B	Valley Forge	U.S. 202	Montgomery
421-B	U.S. 422	U.S. 422	Montgomery
422-B	U.S. 309	U.S. 309	Montgomery

GROUP II

Contract No.	Interchange	Connecting Route	County
423-B	U.S. 611	U.S. 611	Montgomery
424-B	U.S. 1	U.S. 1 (New)	Bucks
425-B	U.S. 13	U.S. 13	Bucks

The work to be performed under each of these two groups of contracts consists of the construction of Heating System for the Utility Building and Toll Plaza and all work incident thereto at each of the three interchanges listed under each group. The Utility Buildings and Toll Plaza are to be constructed by others. Plumbing and Electrical Work will be installed by others.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after August 26, 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania; at the Commission's field office in Conshohocken, Pennsylvania, 10th. Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street.

Plans and Contract Documents which cover both groups of contracts may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of Five ($5.00) Dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
19 August 1953

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.

CLOSING DATE: 10:30 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

EMPLOYMENT

REPLIES (Box No.): Address office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

VALUATION ENGINEER — Wanted by large corporation operating nationally, for establishing and maintaining insurable values of its various plants. Permanent staff position. Location Northeastren Ohio. Salary open. Reply P-8749, Engineering News-Record.

WANTED — EXPERIENCED estimator for building construction for long established Pittsburgh Contracting Company. Good opportunity for advancement. Reply to P-8750, Engineering News-Record.

CHIEF OF Party—Must be capable of handling survey parties and have thorough understanding of survey work pertaining to rights of way, curb and street lines, sanitary and storm sewer surveys, and general survey work. Apply —Howard Madison, Township Engineer, 1 Main Street, Woodbridge, N. J. Phone WO 8-1200, Extension 7.

TRANSIT MAN—For inside and outside work. Must have thorough knowledge of engineering, drafting and calculating, and be thoroughly familiar with deed and conveyance, and tax map work. Apply—Howard Madison, Township Engineer, 1 Main Street, Woodbridge, N. J. Phone WO 8-1200, Extension 7.

DETAILERS — STRUCTURAL Steel Experienced on Bridges desirable. Top rates, voluntary overtime, permanent. Write or Phone, Erdner Engineering Co., 29 E. Madison St., Chicago 2, Ill.

WANTED: MAN for engineering promotion in eastern paving field, college graduate preferably with state highway experience, who likes competitive effort. Good salary and opportunity for promotion. Write full details. P-9056, Engineering News-Record.

UNUSUAL OPPORTUNITY-Building Construction Sales Engineer. To contact industrial firms for design and construction with engineering or architectural background. Fine opportunity for advancement if capable. P-9042, Engineering News-Record.

WANTED—PLUMBING and heating estimator with background in preparing estimates and checking equipment quotations to act as assistant to Chief Estimator. Northern New Jersey contractor. Man with field background as well as office experience required. P-8983, Engineering News-Record.

WANTED EXPERIENCED party chiefs C.E. for New York State Thruway field layout work; also transitmen. P-9017, Engineering News-Record.

(Continued on page 106)

ESTIMATORS

Young engineers capable of mechanical estimating for construction of refineries, steam power and similar industrial projects. Must have some field experience.

Considerable weight given to ambition, intelligence and interest in estimating and cost analysis.

BECHTEL CORPORATION
220 Bush Street
San Francisco, California

SALES MANAGER

Well known machinery manufacturer offers unusual opportunity if your experience includes improving and developing a field sales force and distributor organization in the Construction Equipment field. Send full particulars covering education, experience, etc. to

P-9046, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Medium Size Connecticut City Is Seeking A DIRECTOR of PUBLIC WORKS

SALARY RANGE: Starting salary $8,000—$7,000 maximum reached by $250 annual increments July 1 upon recommendation of City Manager.

City has an approximate population of 40,000 and operates under the Council-Manager form of government. Applicant must possess administrative ability and engineering experience. Municipal, state or military public works experience is desirable. Prefer licensed engineer.

Duties consist of the overall management of Public Works and Planning functions, excluding utilities.

Applications should contain a brief resume of age, experience and education.

P-9073, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

SENIOR FIELD ENGINEERS

Electrical Civil Mechanical

Graduate engineers with responsible field experience on steam power plants or related heavy industrial projects. Require experience in directing the mechanical, electrical or civil-structural phase of a major construction project.

Please write giving complete qualifications, references and salary requirements. Your reply will be confidential.

BECHTEL CORPORATION
220 Bush Street
San Francisco California

MECHANICAL ENGINEER

With general building contractor. Excellent opportunity and permanent position with young aggressive company operating throughout the south. Must be capable of estimating and analyzing subbids received from mechanical and electrical subcontractors and supervise and expedite work after subcontract award. Write full particulars, including education, experience, personal details, and salary requirements, to:

Blount Brothers Construction Company
Post Office Box 1144
MONTGOMERY, ALABAMA

EXPERIENCED STRUCTURAL STEEL DETAILERS

Salary Commensurate with experience.

Darbyshire Steel Co., Inc.
P. O. Box 352 El Paso, Texas

WANTED
Construction Superintendent

For large industrial construction projects. Applicant shall have a successful background of employment with competitive contractors on lump sum projects. This is a permanent position.

P-9019, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS
AND
DESIGNERS

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EXPERIENCED CONSTRUCTION ENGINEERS
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P-9052, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Must have ability and be capable of directing Estimating Dept. of Building Contractor's Office in New York City.

P-9050, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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POSITIONS VACANT
(Continued from page 105)

HIGHWAY ENGINEERS, experienced in expressway design. Permanent positions, excellent opportunities. Send resume of education, experience and salary requirements with first letter. Green Associates, Inc., 220 East Pleasant Street, Baltimore 2, Maryland.

ENGINEER WITH training and experience in Sanitary field. Excellent opportunities in United States or Latin America with small but long established firm having Profit Sharing Plan. P-9030, Engineering News-Record.

EXPERIENCED CHECKERS wanted for work on structural and miscellaneous steel. In application give experience record, salary requirements and date available for work. Carolina Steel & Iron Co., Greensboro, N. C.

HIGHWAY DRAFTSMAN with experience in the preparation of construction plans and estimates. Experience on small bridges desirable. Good inkwork is a prerequisite for consideration. Work located in Washington, D. C. area. Submit resume including photograph, (if available), salary requested and availability to P-8969, Engineering News-Record.

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SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

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SALES ENGINEERS—Albany, New York and Pittsburgh, Pennsylvania with established national concern selling prefabricated metal products to engineering and construction markets. Position offered is permanent and presents excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Age 24 to 30. SW-8254, Engineering News-Record.

PRESTRESSED CONCRETE Structural Design Engineer representatives with established regional contracts required to obtain engineering contracts for leading firm of Prestressing Consultants. Many territories open. Write RW-9026, Engineering News-Record.

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Large engineering firm has large opportunity for producer and worker who has successfully sold engineer-architect services, and has established contacts with industrial and public works. Will operate from Southeast Office.
SW-9044, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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We offer the original personal employment service (established 43 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.
R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N. Y.

POSITIONS WANTED

AVAILABLE IN sixty days. Construction Superintendent for highway work, drainage, irrigation or levee work. Over twenty years experience. Can supervise, plan, and handle work of this kind on the project level. Knowledge of Engineering and thoroughly familiar with government contracts. Prefer Southern California or Arizona. Can also bring Master Mechanic who is thoroughly familiar with repairing of all makes of draglines and crawler equipment. Mechanic has his own tools. PW-8770, Engineering News-Record.

CIVIL ENGINEER—30, with 7 years experience in sanitary engineering, administration, and public relations, desires responsible position with small organization in Northeast. Available about November 1. PW-9058, Engineering News-Record.

CIVIL-HYDRAULIC Engineer. Masters degree. Ambitious and hard working. 4 years experience teaching and with consulting firm on both hydraulic and civil engineering reports and design, site locations and topographic surveys. West Coast preferred PW-9057, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Twenty-two years experience in industrial building, equipment installations and heavy construction. Engineering education. Know costs and Accounting procedures. Fifty years of age, married, no children. Seventeen years continuous employment with one Industrial Building Contractor. Available now. PW-9053, Engineering News-Record.

CE, 28, 3½ yrs Highway & Bridge design experience including traffic analysis, highway layout, structural design, report & spec writing, client contact & supervision. Desire position as Bridge Designer or Field Engineer. Prefer midwest or mountain states. Min. Salary $6000/yr. PW-9039, Engineering News-Record.

PROJECT MANAGER. Graduate Civil Engineer 25 years experience. Estimating, operation and administrative procedure of Sewage Plants, water Works, Sewers, Water Lines and Commercial biuldings. West preferable. PW-9038, Engineering News-Record.

SANITARY ENGINEER — Age 39; married. M.S. degree. 7 years experience in sanitary engineering field including design, construction and administration. Desires responsible permanent position. Prefer far West. Registered CE in, California. PW-8863, Engineering News-Record.

ENGINEER, REG. P.E. Reports investigations, settlement of contractors' claims. 45 years experience. Design, construction. Turnpikes, tunnels, buildings, foundations, etc. PW-8746, Engineering News-Record.

STRUCTURAL ENGINEER — Graduate C.E., Reg. P.E. in N.J., N.Y., Pa., & Mass.; 31, married, children. 7 years experience in office supervising complete design of industrial bldgs., hospitals, and institutions. Resident metropolitan N.J. PW-8487, Engineering News-Record.

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CIVIL ENGINEER, 31. Married. Seven years varied experience—resident of Nassau County, Long Island. Am interested in housing field as Construction Supt. or assistant job. PW-9041, Engineering News-Record.

CIVIL ENGINEER, 21. Draft exempt, 1 years experience estimating and design. New York City or vicinity. PW-9029, Engineering News-Record.

PROJECT MANAGER or General Superintendent desires connection with construction company doing foreign or domestic work. Broad experience heavy construction, organization, reorganization, administration and over-all management. Large well trained following. Highest references. Available September 15. PW-9000, Engineering News-Record.

(Continued on the opposite page)

POSITIONS WANTED

(Continued from opposite page)

FIELD ACCOUNTANT-Accounting taxes, payrolls, purchasing, auditing, personnel, pricing bid estimates. Travel World wide. Frank Imperiale, Station 1, Anchorage, Alaska.

WANTED-DYNAMITE work, 25 years construction experience, available at once. PW-8979, Engineering News-Record.

STRUCTURAL ENGINEER . . . Masters degree, 4 years experience in design and field construction. Available Oct. 15 upon return from armed forces. Southern location preferred. PW-8998, Engineering News-Record.

PROJECT MANAGER, General Supt. Available for medium or large scale combination of bldgs. or Heavy Construction. Service background practical experience, 25 yrs. Handling all phases, complex projects, private, commercial, defense & public works. Administrative ability, office & field operation procedures. Liaison, Sub-Contrs, Owners representatives & related agencies. Open Foundations, Bldgs, Bridges, Viaducts, Hydro-Electric Developments, Dams, Airports, Highways, R. R. Grade separations, Mfg. Process Pilot Plants, Sewage Disposal, R. R. Subway Cut & Cover, heavy earth & rock work. References. Replies PW-8995, Engineering News-Record.

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CONSTRUCTION ENGINEER C.E. Graduate age 53 long successful administrative experience all phases large scale general construction and industrial chemical in field and office. Employed seeks new connection, top references. PW-8928, Engineering News-Record.

SUPT. EXTENSIVE experience in rock, blasting, drilling—concrete, earth moving. Foreign or Domestic. PW-8973, Engineering News-Record.

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1200 feet 10" Blaw-Knox Road Forms, Plain

2000 feet 10" Blaw-Knox Road Forms, with construction joint key form attached. Both items complete with pins and wedges. In 10' 0" lengths.

1—TD-18A International Tractor
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All of above are in excellent condition.
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Unit ½ Yard Crane new 1951 $7,000.00
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Completely Overhauled
$24,000.
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4500 MANITOWOC
5 yd. dragline on 140' boom.
60" treads, Cat. 386 engine.
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3—Brand New
Manitowoc 3000B Cranes
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CHECK the PRICES and CONDITION of this GOOD USED EQUIPMENT

We Guarantee this Equipment as Listed and Invite YOUR Inspection

EUCLID 9BV LOADER powered by General Motors diesel. Hitch for HD 20 tractor. New belt and spare parts included. This machine is in near new condition having moved less than 350,000 cy. material: Current price of this machine delivered in New Jersey with new belt is approximately $36,128.00
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$600

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210 CFM WORTHINGTON (Gas) 4P	$ 2400.00
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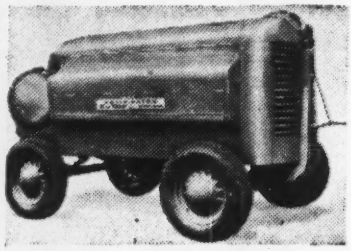

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Dell Ave. & 40th St. North Bergen, N. J.
UNion 5-4848

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2—Marion 33-M ¾ yd. Shovels, Backhoe & Crane Boom 50', Air Operated, Extra Wide Cats. In Excellent Condition.

1—37.5 K.V.A. Generator driven by Buda diesel Model DTG, 30 K.W., 127-220 volts 98.5 amps, continuous duty. Used very little.

OLE HANSEN & SONS, INC.
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INDUSTRIAL STEEL SASH
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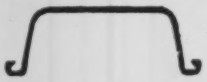

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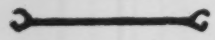

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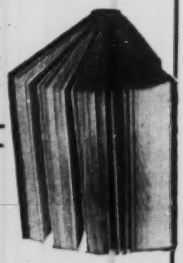

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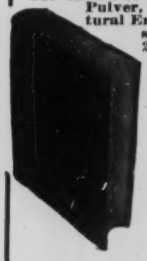

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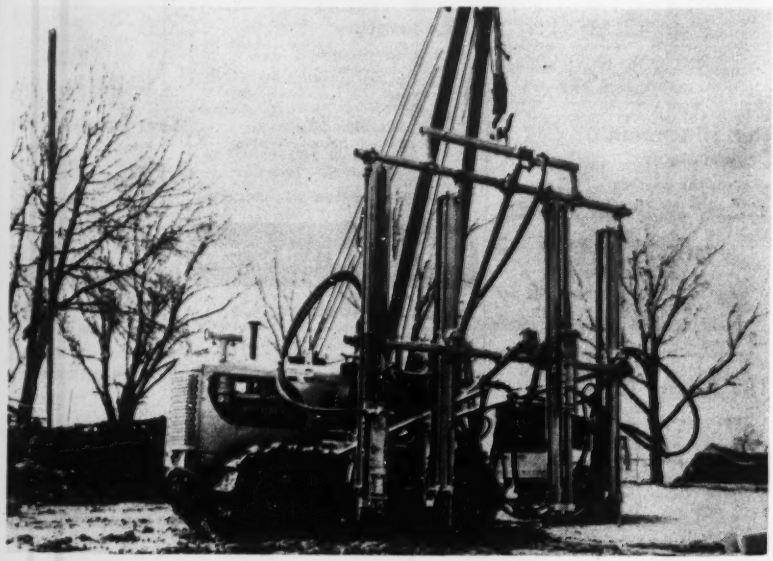

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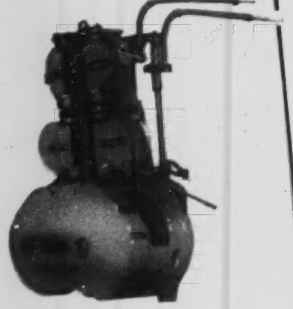

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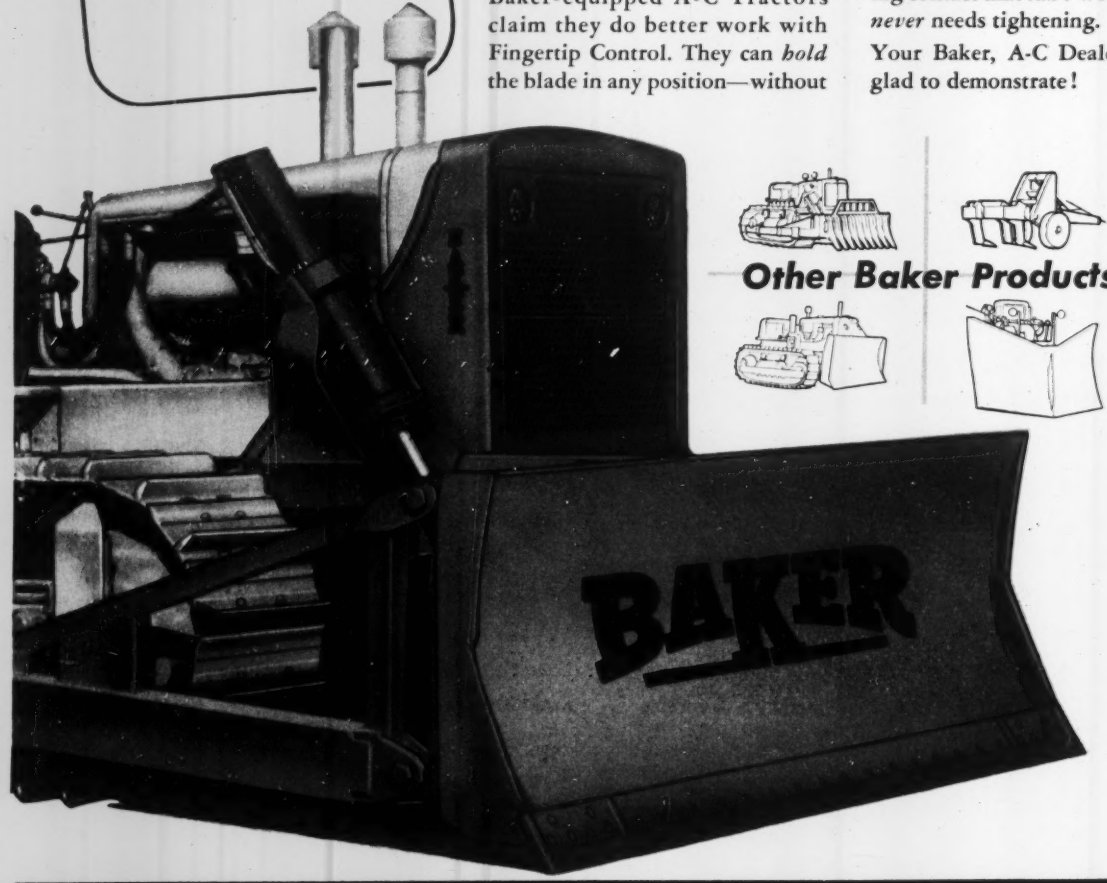

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Since friction material operating in oil has a much lower coefficient of friction, the engaging force of an oil clutch must be higher than an equivalent dry clutch. It was therefore necessary to develop an engaging mechanism with a very high mechanical advantage.

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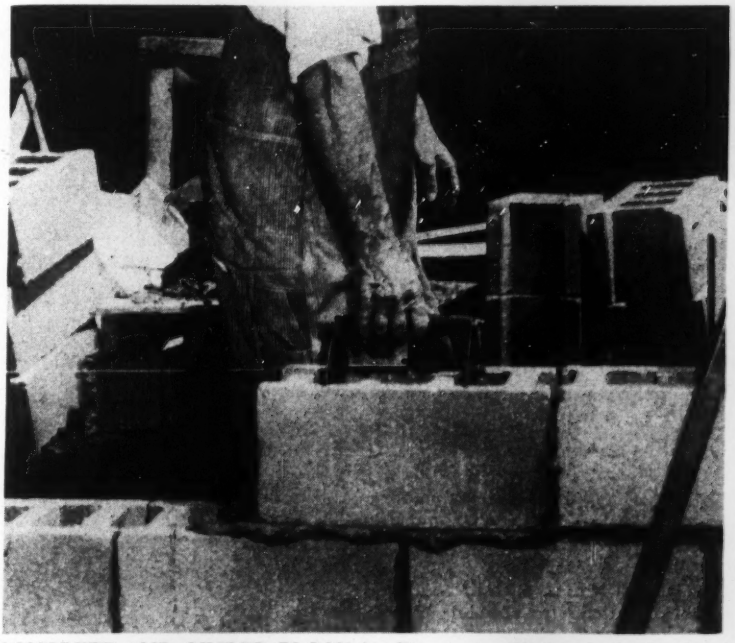

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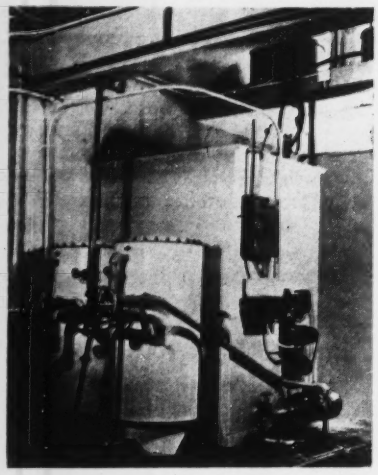


Water conditioner for small municipalities

The Permutit package water conditioner plants have been designed to remove turbidity, color and organic matter from water supplies; to chlorinate; to remove bad tastes and odors; to neutralize, and to soften. The package plant has applications that include the conditioning of water for small municipalities, real estate developments, power stations and recreational facilities.

Each complete water conditioner consists of a precipitator with a built-in clearwell, a proportioning chemical feeder control, a coagulant feeder tank, a lime or soda ash and hypochlorite feeder tank, an inlet float control valve, Neutralite filter unit(s), Carbo-Dur purifier unit(s) and a service pump.

The plant is available in eight standard sizes ranging from 500 to 3300 gph. Larger capacities can be furnished on request. THE PERMUTIT CO., 330 W. 42ND ST., NEW YORK 36, N. Y.

Sand, liquid or air used in new hand gun

Operating on air pressures of 75 psi and up, a new triple-purpose hand gun uses sand, liquid or air for small-job cleaning. 100 to 140 psi is recommended for efficient sand blasting operations.

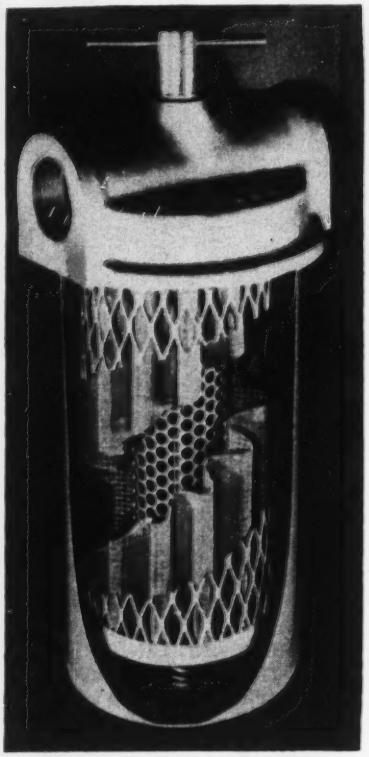
The Carco gun is included in a complete kit that also contains three extra steel nozzles, an extra steel jet, a glass sand container with cap, brass fittings, 3-ft rubber hose and a wrench for removing and installing the jet.

Suggested applications for the gun include spark plug cleaning, paint and rust removal, carbon removal and cleaning welds, radiators, corroded parts, etc. C. A. ROESCH & CO., 1221 S. HOPE ST., LOS ANGELES 15, CALIF.

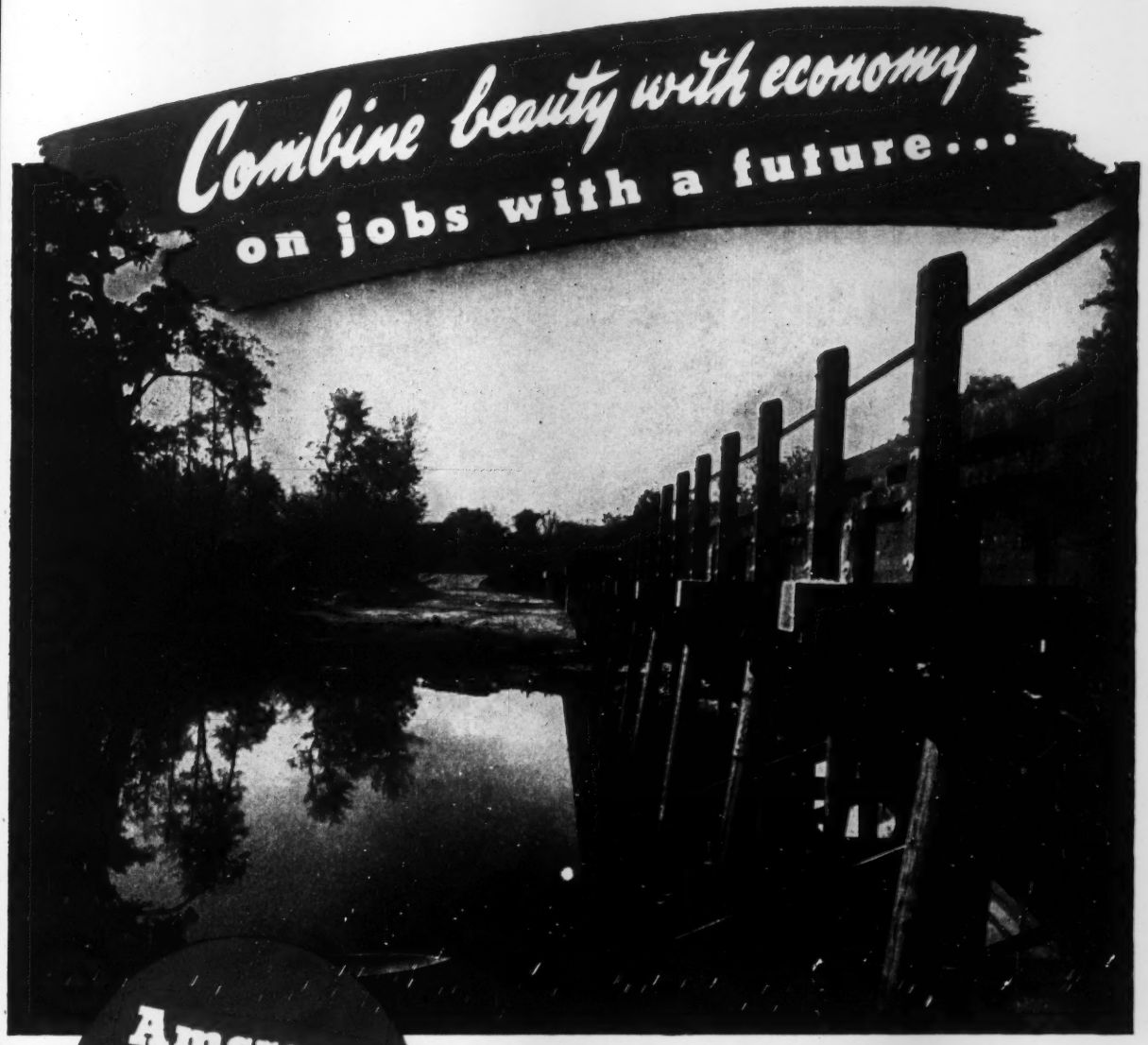
Hydraulic filter systems cut equipment maintenance

Construction equipment owners whose expensive machines normally operate in dirty and dusty conditions can readily appreciate the value of filter systems for hydraulically operated machinery and attachments. Removal of foreign material from hydraulic systems before it reaches delicately machined cylinders, pistons and pumps can reduce wear and consequently maintenance costs and down-time.

The usual difficulty with such filter systems is that because working conditions in the construction industry are so generally bad, filter elements must be cleaned or replaced frequently. Marvel filters, however, are said to offer substantially longer periods of effective operation between cleanings and fast cleaning when necessary. The filters are available in sump and line models in capacities from 5 to 100 gpm. Mesh sizes are available from 30 to 200. MARVEL ENGINEERING CO., 625 W. JACKSON BLVD., CHICAGO 6, ILL.



CONSTRUCTION of line model shown.



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Amcreco Creosoted Products fit right into today's demand for beauty as well as utility in bridge projects. And the dependable, long-life of material treated by Amcreco means greater long-run economy. Amcreco treating methods are based on accepted methods improved by years of practical experience, research and development. We would like to have the opportunity to tell you more.

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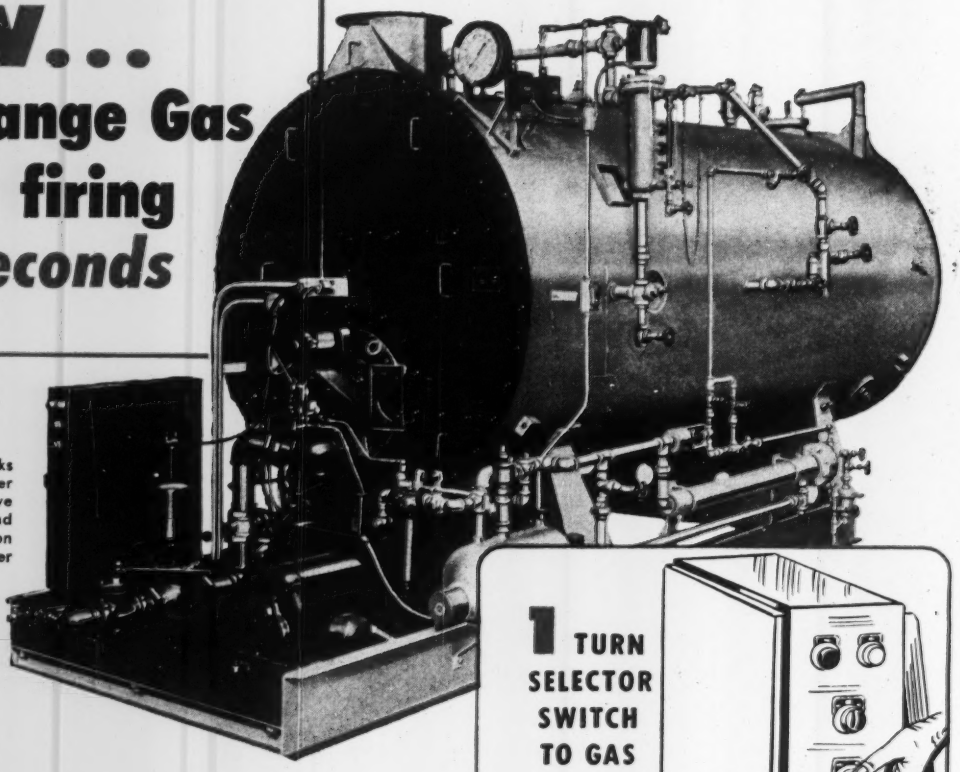
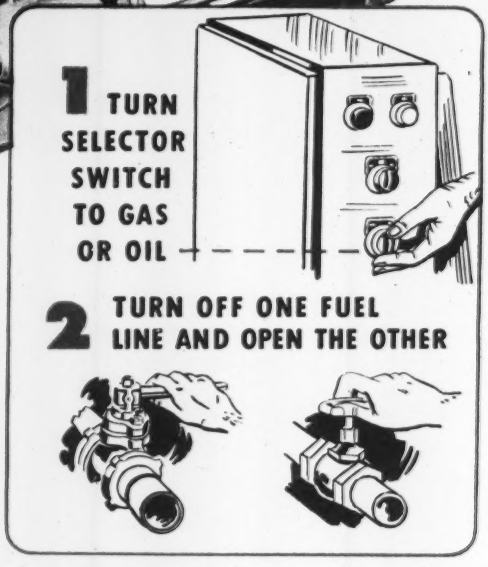


Modern Cleaver-Brooks Model LR Steam Boiler Equipped with Exclusive Cleaver-Brooks "10-second conversion" Combination GAS and/or OIL Burner



TWO, simple motions eliminate time-consuming change-over

NOW you can use oil or gas at the flick of a switch! This exclusive new Cleaver-Brooks development permits changeover from oil to gas or vice versa in only 10 seconds.

That's because the Cleaver-Brooks Combination Gas and/or Oil Fired Boiler operates on gas *with the oil burner in place*. Simply flipping a selector switch on the control panel to either gas *or* oil sets the proper circuit in action. Turning the convenient fuel supply valves completes the entire changeover — and in 10 seconds or less!

To gas users in all parts of the country — and in particular areas where local requirements demand immediate changeover — this exceptional fuel flexibility can be an important factor in determining your overall operating economy.

Ten-second conversion, like 4-pass construction, self-contained design, guaranteed 80% efficiency, is another "plus" feature pioneered by Cleaver-Brooks. It demonstrates Cleaver-Brooks' continuing effort to bring steam users even greater flexibility and reduced operating costs.

Consider Cleaver-Brooks boilers for simplifying your operation. Automatic firing on oil, gas or combination oil/gas fuels, plus extra conveniences, assure greatest investment return. Write for catalog.

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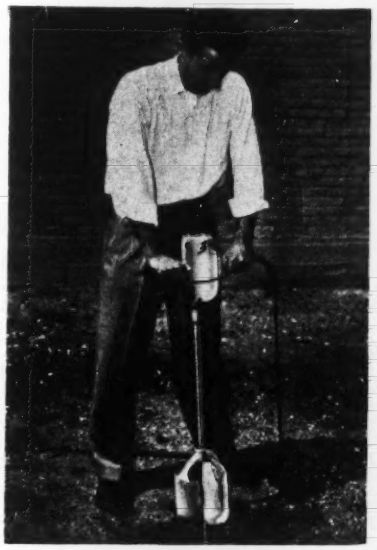


Portable post-hole digger bores to six-foot depth

A light, self-powered hole digging and tunneling machine has been developed to bolster the line of heavier duty machines now on the market. The new tool will drill holes four to eight inches in diameter to a maximum depth of six feet and on pipe installation jobs can tunnel up to 12 ft. One man can operate the machine.

Digging blades are hardened alloy steel, and it is said that they will not bend, break or throw the operator when obstructions are encountered. Also, the tool chews up softer shales and rides above large rocks without damage.

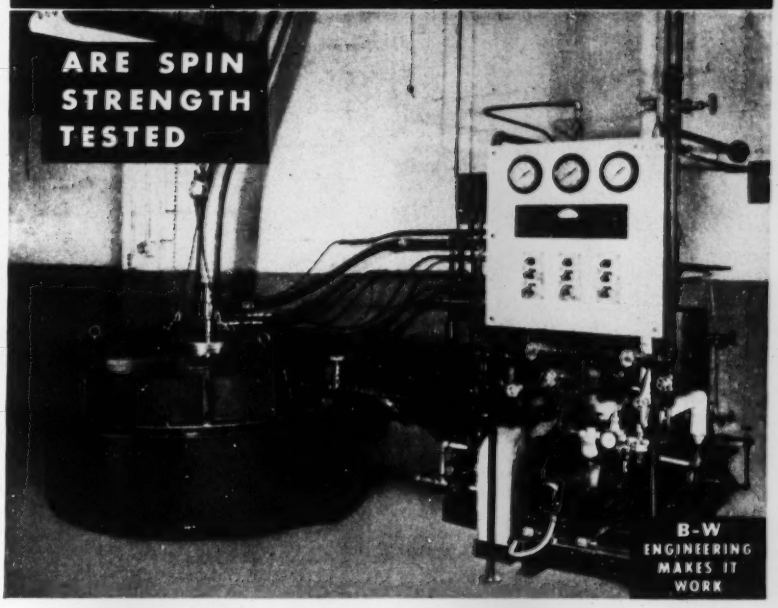
The tool will operate in any remote location from a 1.25 KW or more AC or DC generator, or it can be used on a 115 volt DC or AC—60 cycles or less — power source. MULTIMATIC CORP., P.O. Box 2143, VAN NUYS, CALIF.

Reversible hydraulic motor featured on truck mixer

Drum drive by reversible hydraulic motor is the feature on a new 4½ to 5½ cu yd Willard mixer. The motor is operated by power take-off from the truck transmission and eliminates the auxiliary gasoline engine.

The drum is driven from the hydraulic motor by chain and sprocket at 8 to 12 rpm for charging or discharging and 3 to 5 rpm for mixing in transit. The drive is controlled by a valve that changes the direction of flow in the hydraulic motor; a check valve prevents drum roll-back while shifting

ROCKFORD CLUTCHES



To determine the bursting speed of ROCKFORD CLUTCHES, they are spun up to a high R.P.M. in this air turbine speed chamber. This test assures they will continue to perform efficiently at the speeds for which they were designed. Let ROCKFORD engineers devote the benefit of this and many other tests to your product's clutch design.

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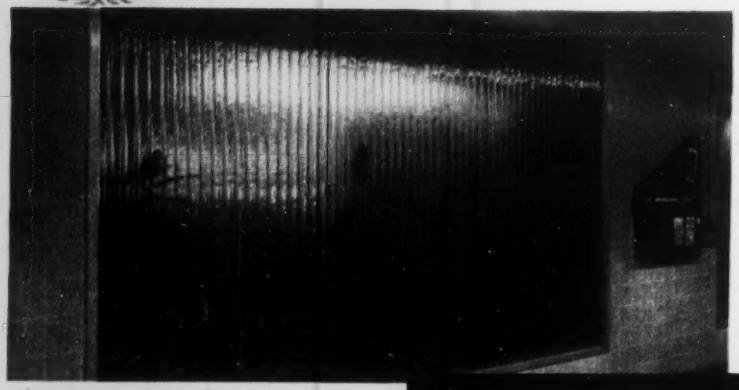
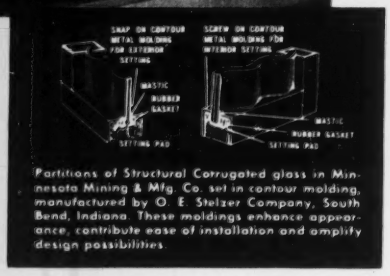
3M COMPANY .... MAKES WALLS BRIGHTEN HALLS



In its new office building, Minnesota Mining and Manufacturing Company has found that walls of Structural Corrugated glass by Mississippi are good business. The gleaming, translucent partitions flood hallways and offices with borrowed light and create a modern, efficient and pleasant working atmosphere. Offices seem larger, too. And these Structural Corrugated glass panels are so easy to maintain... they clean easily... never need painting... never wear out. Glass always looks good.



Partitions of Structural Corrugated glass in Minnesota Mining & Mfg. Co. set in contour molding, manufactured by O. E. Stelzer Company, South Bend, Indiana. These moldings enhance appearance, contribute ease of installation and amplify design possibilities.

For new construction or the modernization of existing facilities, consider the many applications of rolled, figured and wired glass by Mississippi. Available in a wide variety of patterns and surface finishes wherever quality glass is sold.

Send today for free catalog, "Figured Glass By Mississippi." Samples on request.

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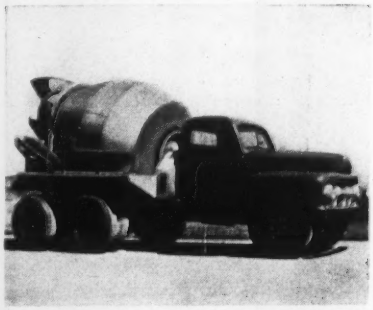

POWER TAKE-OFF eliminates auxiliary drive on new Willard mixer.

gears. The power take-off is controlled from the cab, and mixing and discharge are controlled from left front or left rear by throttle and valve.

The drum is stiffened by two continuously welded overlapping mixing spirals. The folding chute is made of ¼-in. steel and extends four feet from the swivel center. Two chute extensions, 2½ and 5 ft long, are mounted on the fender.

A copper coil through the 67-gal water tank for oil return service serves to cool the oil and prevent the water from freezing during winter operations. The water tank and a 24-gal oil reservoir are carried as a single unit in the rear.

The Willard Hydro-Mixer is suitable for mounting on most ten-wheel trucks having 147-in. average wheelbase. Willard Concrete Machinery Sales Co., 11700 Wright Rd., Lynwood, Calif.

New Products briefs . . .

• **Modified vibrator carriage**—A telescoping handle extension designed to give greater stability and ease of handling has been added to the gas vibrator made by the Viber Co., 726 South Flower Street, Burbank, Calif. The handle, an inverted U-section of the frame at the lifting end, is welded in two pipe sections which telescope into the upper horizontal members of the frame, permittting a maximum extension of 20 in.

• **White curing compound**—A white concrete curing compound of the resin-wax type has been developed by Aluminum Industries, Inc., 2438 Beekman Street, Cincinnati, Ohio. Designated Permite PW-40, the white pigment is claimed to form a protective layer that deflects the sun's rays from the concrete surface, reducing premature drying and cracking. Its ready visibility is also said to assure uniform coverage.

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Because they are AMSCO "Wear-Sharp"* Repointers that stay sharper with use...

Service life plus! The combination of Amsco Manganese Steel and the hardness of AMSCOATING with Amsco Hardfacing electrodes—gives you a tooth that wears evenly and stays sharp longer.

Note that only certain grooves (shown in red at left) are Amscoated—the grooves on the outside and the one on each end. This is the area where ordinary teeth wear fastest. The hardened corners on the "Wear-Sharp" equalize wear along the entire cutting edge and eliminate rounded, blunted corners that cut digging speed and waste power.

Field reports indicate that "Wear-Sharp" repointers will give as high as six times the life of other teeth.

In these photographs at right of a typical case history, old repointers lasted from three to four days. Amsco "Wear-Sharp" repointers lasted 32 days—eight times the service life of the repointers previously used.

"Wear-Sharp" repointers installed on two dipper teeth showing condition of old teeth.

Notice the even wear on these teeth after 257 hours of use with "Wear-Sharp" repointers used. New "Wear-Sharps" are ready for installation.

AMERICAN Brake Shoe COMPANY

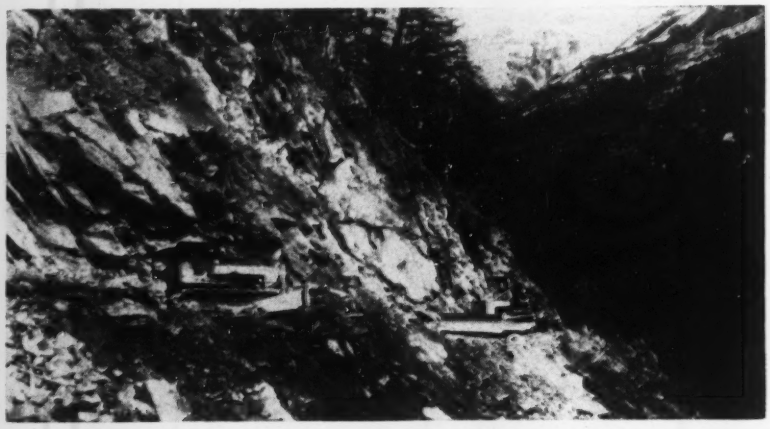
AMERICAN MANGANESE STEEL DIVISION

379 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

FILMS

Man With a Thousand Hands—A 33-min sound-color film produced by International Harvester Co. and narrated by Raymond Massey. This motion picture, of general interest to construction people, describes systematically the five construction jobs that go to make up the Kitimat project on Canada's west coast.



This is a moving story—not the Hollywood variety—but a story of earthmoving on one of the largest construction projects ever attempted, the five-pronged attack on Canada's coastal mountains to construct an aluminum smelter and hydroelectric power supply.

Step by step, the smoothly pacing voice of Massey sets the cadence of a narrative that carries the project from the Kenney Dam on the Nechako through the ten-mile long tunneled penstocks, the underground powerhouse and 50-mile transmission line to the site of the smelter on the Kitimat delta.

The film lacks an abundance of technical detail, but because of the tremendous scope of the project the inclusion of such detail would only prove tiresome. Instead, the film's producers have developed a script that can be understood by a layman and yet it is not patronizing.

Several interesting sidelights of large scale construction are shown in the use of helicopters and two-way radios and the extensive camp facilities required.

Credits are given the Aluminum Company of Canada, the project owners, and the Morrison-Knudsen Co., principal contractors on the dam and powerhouse, but International-Harvester has been content to underplay its role. I-H tractors, when they appear, are referred to as simply TD-24's or big red crawlers, but the impression left is not an advertising "flashburn" but one that will be remembered as long as the picture.

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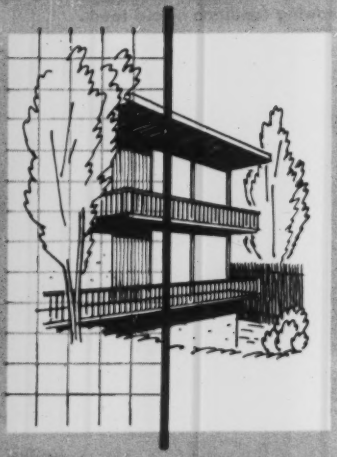

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PUBLICATIONS

Wire rope—A 64-page handbook gives complete information on the line of steel wire rope manufactured by A. Leschen & Sons Rope Company. Included also is data covering fittings for wire rope and suggestions for proper use. A. LESCHEN & SONS ROPE COMPANY, 5909 KENNERLY AVENUE, ST. LOUIS 12, MO.

Concrete joints—A 24-page illustrated technical booklet discusses poured, premolded, ribbon and vibrated joints for concrete highways and airports. The booklet shows modern mechanized methods and attempts to show how the operator can do a better, faster job at much lower cost, by using such methods. Bulletin M-102, FLEXIBLE ROAD JOINT MACHINE COMPANY, WARREN, OHIO.

Thermal insulation—New dry wall installation methods for Fiberglas cold storage insulation are described in a 16-page booklet. The publication outlines in detail the three dry wall methods for insulating freezer rooms as well as the traditional hot dip method. Design details for Fiberglas roof and floor insulation are also given. OWENS-CORNING FIBERGLAS CORPORATION, TOLEDO 1, OHIO.

Belting—A 48-page technical manual deals with transmission, conveyor and elevator beltings. Although written principally for engineers, each of the three major divisions of the new manual contains a general information section covering the aspects of each belting. BOSTON WOVEN HOSE & RUBBER CO., P. O. Box 1071, BOSTON 3, MASSACHUSETTS.

Testing equipment—Field and laboratory engineers engaged in testing soils, concrete or bituminous materials will be interested in a comprehensive 72-page catalog describing over 800 items of apparatus used in those fields. About 50 pages are devoted to soil testing equipment, four to bituminous materials, three to concrete and the remainder to general laboratory equipment. The extensive soil testing equipment section presents information on triaxial, consolidation, California Bearing Ratio, compaction, pore-pressure as well as a wide variety of standard testing apparatus. One special section is devoted to apparatus that is used for chemical and agricultural tests of soils. Write for catalog No. 53. SOILTEST, INC., 5420 W. NORTH AVE., CHICAGO 39, ILL.

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EDITORIALS

Looking ahead in power

THE POWER POLICY STATEMENT of the Eisenhower administration (ENR Aug. 27, p.23) is sound and in line with the policy applied quite consistently to federal dam-building until the Roosevelt administration came into power in 1932. Until then, hydro power had been considered a by-product of navigation or irrigation work, not a primary objective. Power generated at dams built to make a river navigable or to store water for irrigation was sold to existing utility systems, not used to create federally controlled power systems. Also, the federal government assumed no responsibility for seeing that any region had enough power to meet its needs. That responsibility rested on the privately owned electric utilities.

The newly announced federal policy returns most of that responsibility to those utilities. They, along with many others—including this journal—look upon the change as sound and in the best interest of the nation as a whole. Nevertheless, the satisfaction now being so jubilantly expressed in electric-utility circles needs to be tempered by realization that in some regions this change in federal policy puts on the utilities a new responsibility that may call for willingness to invest money in power plants and in distribution systems that do not show immediate prospects for a return on the investment.

In looking back over the last 20 years we should be both unrealistic and unfair if we did not recognize that the public-power enthusiasts of the Roosevelt administration did help the United States meet the unprecedented demand for power that arose with the advent of World War II. Had it not been for their crusading spirit, the country would not have had big power plants like Bonneville and Grand Coulee, which did so much to help meet that power emergency.

In saying that, we do not mean to imply that the public-power advocates of that day had vision beyond the market analysts of the major electric utilities. They did not. They were gambling on finding a market for power from the big government plants they proposed and probably would have put the federal government into a rate-cutting fight had war not created the market. What we mean is that the electric utilities of today will need more of the same gambling spirit if the way is not to be left open for other advocates of federal development of power to put the federal government back into the business of generating and distributing power in a large way.

The policy statement says that the Department of the Interior will continue to recommend construction of "those multiple-purpose projects with hydroelectric developments which, because of size or complexity, are beyond the means of local, public or private enterprise."

In substance, then, what the power policy statement does is take the federal government out of the business of building power generating and distribution systems which are or could be competitors of the privately owned systems. Consequently, the length of time during which the government continues to hold to the new policy will depend in large measure on how well the privately owned utilities live up to the new responsibilities that the change in policy places on them.

Revolution in building walls

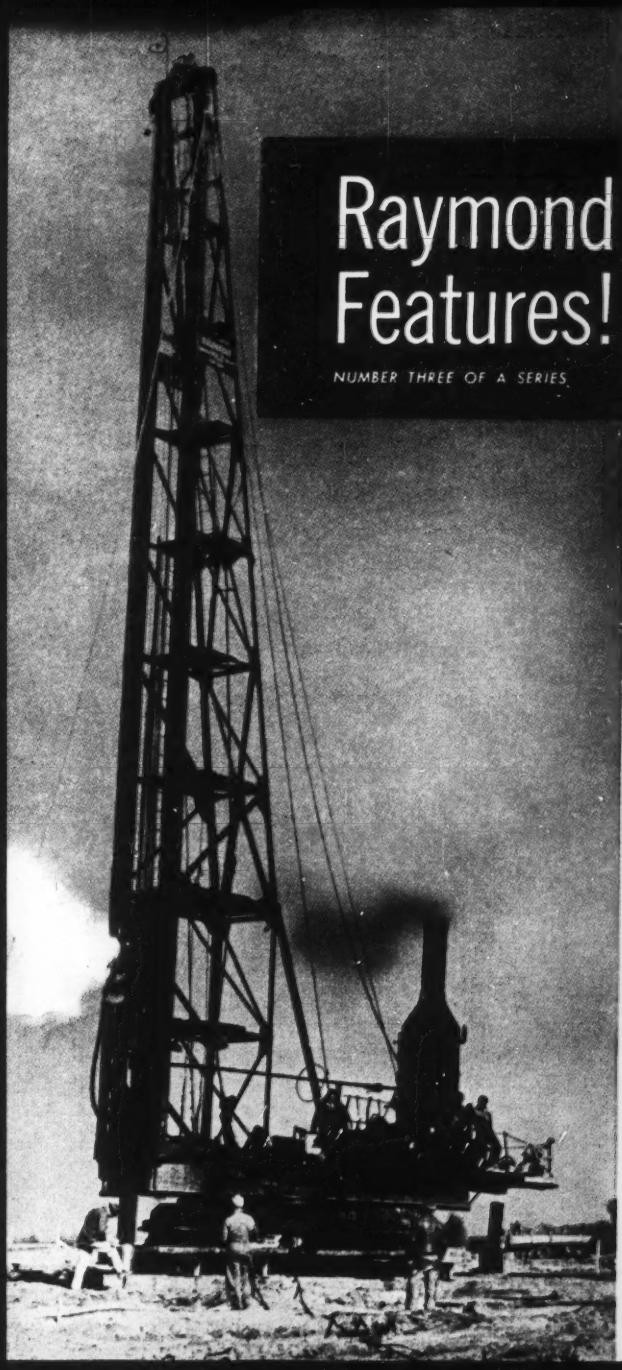
THE SPEED with which a skyscraper at 99 Park Ave., New York City, was walled in with aluminum panels last month thrilled building professionals and laymen alike. Panels forming the exterior facing for 100,000 sq ft of the new 26-story office building were bolted in place in 66 hours (ENR Aug. 13, p.43). Two stories high, each unit is composed of two windows and two spandrels. Behind it is an air space, 4-in. brick backup, insulation and air-conditioning equipment.

Initial cost of the metal facing was higher than for masonry. The owner-builder—an experienced realty and construction firm—approved it for several reasons: Speeding up construction meant that rents could be collected sooner; cost of maintenance is expected to be negligible; savings could be made because structural steel members and foundations are reduced in size; and the unusual facade has high advertising value.

This latest project continues a trend of recent origin which is away from exterior walls built of small masonry units hand-set around individual windows. Other recent examples are four office buildings in Pittsburgh, where both aluminum and stainless steel were used to face panels that were only one-story high. The panels in two of these buildings, however, are of a more advanced design than the two-story panels for the Park Ave. building in New York in that the back-up of lightweight concrete was prefabricated with the stainless steel facing as a further means for reducing the hand operations required to make a complete exterior wall.

To a large extent, the trend here noted is the result of growing dissatisfaction with the cost of unit masonry walls. Placing masonry units such as brick by hand, or stone with derricks, is too slow—not in keeping with the tempo of other building operations. In contrast, large-size prefabricated panels speed up the enclosure phase; thus, they aid other building operations.

If designers and builders pursue this advantage, and if panel fabricators improve their competitive position by developing lower-cost units, the trend toward large-size prefabricated wall panels should become considerably stronger. How much of the wall market such panels may corner depends on who wins the battle of research—on how much the cost of panels can be cut—or what can be done to improve masonry construction.



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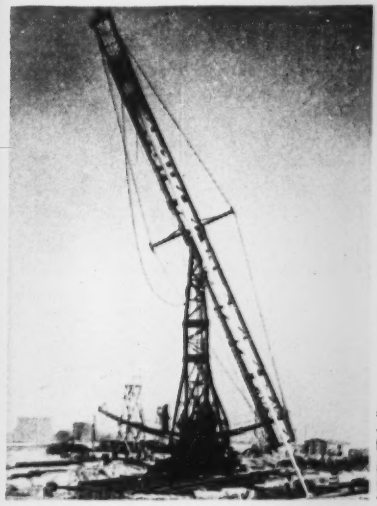

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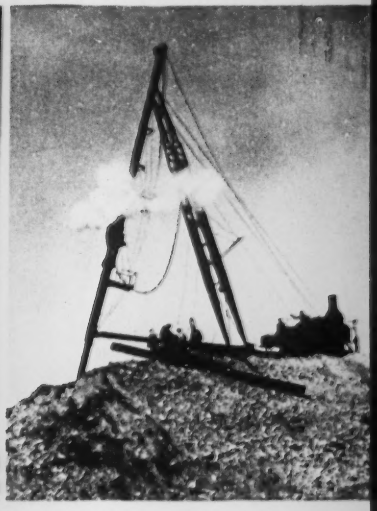

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